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TRANSACTIONS
OF THE
MEDICAL AND PHYSICAL SOCIETY
OF
BOMBAY.

FOR THE YEARS M.DCCC.XLVII AND XLVIII.

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1849.

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MEDICAL AND PHYSICAL THERAPY

BOOK I

THE PHYSICAL THERAPY OF DISEASE

BY DR. J. H. HARRIS

PHYSICIAN

OF THE UNIVERSITY OF CHICAGO

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1910

TRANSACTIONS.

1847 & 1848.

TRANSACTIONS
OF THE
MEDICAL AND PHYSICAL SOCIETY
OF
B O M B A Y .

1847 & 1848.

ARTICLE 1.

Contributions to the Military Medical Statistics of China.
By John Kinnis, M. D., Deputy Inspector General of Her Majesty's Hospitals.

Presented April 1848.

I. ON THE MILITARY STATIONS, BARRACKS, AND HOSPITALS, OF
HONG KONG.—*Written in 1846.*

Hong Kong is a small island, on the south coast of China, at the estuary of the Tiger or Canton river, about 10 miles in length and $6\frac{3}{4}$ miles in its greatest breadth. The north and north-east are separated from the south and south-west sides, by irregular rocky hills, which vary in height from 500 to 1,744 feet, above the mean level of the sea. They are generally studded or strewed with masses and fragments of granite, and covered with coarse grass, which is often choked by ferns and stunted brushwood, on the north and north-east sides. Granite, the principal rock of the island, is extensively quarried for architectural purposes, and the soil consists chiefly of decomposed granite. In some places this rock is inter-

sected by dykes of quartz, and in others, on the sea shore, by veins of dark slate-coloured trap, from 3 to 18 inches thick.*

There are no rivers of considerable magnitude in the island, but numerous streams, which furnish an abundant supply of good water, and often descend from the hills, during the rainy season, in impetuous and foaming torrents.

The only wild quadrupeds, known to exist in Hong Kong, are a small species of deer, and a "sort of Armadillo,"† (Manis ?) of neither of which have I yet seen specimens. There are a land tortoise, numerous frogs, and several kinds of snakes, none of which have been ascertained to be poisonous‡

Victoria market is well supplied with fish, poultry and pot herbs; frequently with good mutton, though this is often scarce and generally dear; sometimes with game, as pheasants, partridges, quails, curlews; and, at all times, with very indifferent beef, and good and cheap pork. Rice is cultivated around every village, and the potatoe of Europe, as well as the fruits of Macao and Canton, have been introduced; but, with exception of a delicious shaddock, received in presents from Amoy, a very good description of mango, and the lichi, the fruits have little delicacy or flavour. The Mandarin orange is not to be compared to the same species, at the Cape of Good Hope, and the grape, banana and pine apple, are all inferior of their kind. There are red and yellow plums, which make a very good jelly, and would be tolerable as a dessert fruit, did the Chinese allow them to ripen on the tree, which they never do—hard pears, to be stewed or preserved with sugar, but not otherwise eaten—chestnuts, walnuts, and a few other fruits, with Chinese names only, either indigenous in Hong Kong, or brought from Canton and the northern ports.

In addition to the potatoe, which varies in price from 2 to 7 dollars (i. e. from 8s. 4d. to £1. 9s. 2d.,) per picul of 133½ lbs., the market supplies, in greater or less abundance, at different seasons of the year, the sweet potatoe, yam, coco, brinjal, spinach, broccoli, cabbage, pumpkins, French beans, green peas, carrots, turnips, cucumbers, &c.

* *Note on the island of Hong Kong, by A. R. Johnston, Esq.*, republished in the Hong Kong Almanac for 1846, from the London Geographical Journal. Vol. 14.

† Mr. Johnston loc cit.

‡ Ibid.

The following table, for the materials of which I am indebted to the Hong Kong Almanac for 1846, gives the highest, lowest, and mean temperature at Hong Kong, during every month of the year, calculated from a Register, kept during the last four years, in a glazed anteroom having a northerly aspect, about 55 feet above the mean level of the sea; and the highest, lowest, and mean height of a Barometer, with Thermometer attached, kept in the same place, for a considerable portion of that time; as well as the number of days, in every month, during which the wind blew in the direction of the cardinal and four intermediate points of the compass.

MONTHS	BAROMETER.			THERMOMETER.			RAIN.		WIND.									
	Max.	Min.	Mean.	Max.	Min.	Mean.	No. of Rainy Days.	Depth in 1845.	N.	N.E.	E.	N.E.	S.	S.W.	W.	N.W.	Calm.	Total.
January.....	30 28	29 71	29 97	73 ..	51 ..	62 ..	5 ..	..	.. 66	4 25	10 5	6 ..	.. 33	1 .. 5	6 25	3 .. 5	..	31 ..
February.....	30 29	29 66	29 99	78 ..	50 ..	63 ..	4 ..	..	1 66	4 4	16 5	4 ..	..	1 .. 5	4 ..	1 ..	..	27 99
March.....	30 19	29 66	29 95	80 ..	48 ..	66 ..	11 15	..	2 ..	..	21 ..	6 ..	..	1 .. 5	6 ..	1 ..	..	31 ..
April.....	30 04	29 65	29 88	87 ..	49 ..	71 ..	9 33	..	..	4 ..	18 ..	4 ..	1 ..	1 .. 5	4 ..	..	..	5 ..
May.....	29 92	29 60	29 76	88 ..	68 ..	78 5	17 ..	..	..	1 5	22 ..	4 75	2 ..	1 .. 5	4 75	..	..	25 ..
June.....	29 88	29 46	29 65	92 5	75 ..	83 ..	13 ..	..	25	1 5	11 ..	8 25	2 ..	3 ..	8 25	1 25	2 ..	30 ..
July.....	29 85	29 35	29 64	92 ..	80 ..	85 ..	17 ..	7 565	..	1 5	14 66	1 75	2 33	1 .. 5	8 ..	..	2 ..	29 ..
August.....	29 81	29 27	29 61	92 ..	78 ..	83 25	21 ..	14 ..	.. 5	3 66	14 5	1 75	3 25	1 75	4 25	66	2 ..	30 74
September.....	29 94	29 10	29 77	90 ..	76 ..	82 5	14 ..	17 ..	75	3 5	15 25	1 75	3 25	1 25	4 75	1 ..	1 75	31 98
October.....	30 16	29 63	29 86	90 ..	66 ..	80 ..	7 ..	13 20	1 75	9 75	11 ..	1 ..	1 ..	1 66	3 ..	2 33	1 ..	31 49
November.....	30 14	29 90	29 99	90 ..	61 ..	72 6	6 ..	1 6	2 5	2 12	75 9	1 33	..	..	2 75	2 ..	66	29 99
December.....	30 25	29 90	30 03	77 ..	51 ..	63 6	4 ..	85	2 5	11 ..	5 ..	1 33	..	..	4 33	4 33	2 5	30 99
Aggregate.....	360 75	354 79	358 10	1,024 5	753	890 25	133 83	54 215	11 41	56 91	168 91	19 66	10 41	12 16	60 83	16 57	9 32	362 28
Average.....	30 06	29 57	29 84	85	63	74	11	9	95	4 74	14 08	1 64	87	1 01	5 07	1 33	78	30 76

From this table it appears that the Barometer is higher in December than in any month of the year, decreasing regularly from that month till August, when it again begins as regularly to rise.

"During four-fifths of the year the wind, or more properly currents of air in the harbour, prevail from the eastward and northwest, but very little from the south."

The annual range of the Thermometer is $42\frac{1}{2}$, the maximum height $92\frac{1}{2}$ (in June), the minimum 48° (in March), and the monthly range in July, 12, August, 14, September, 14, June $17\frac{1}{2}$, May, 20, January, 22, October, 24, November, 24, December 26, February, 28, March, 32, and April, 38.

The mean temperature of the year.....	74°
—————hottest month (July).....	85°
—————coolest do. (January)	62°

Victoria, in the western, Stanley or Check-Choo, in the southern, and Saiwan, in the eastern division of Hong Kong, were occupied as Military Stations, during the year. The last of these, Saiwan, has been sometimes erroneously called Aberdeen, a name now applied to Check-py-wan, a much larger village, and once a military post, on the south-west coast.

Victoria, the seat of the supreme British authority in China, was founded in 1841, and, in December 1845, contained 241 houses and public buildings, of which 18 were in progress of erection and 50 uninhabited. In May 1844, the Native population of the whole island was estimated at 7,450, and in December 1845 at 13,380. The town has been built near the west end of the island, on the north-eastern declivity of a range of precipitous hills, the highest of which, Victoria Peak, rises behind it, 1,774 feet above the level of the sea, and Mount Gough, another hill nearer the eastern extremity of the town, overlooks the new military hospital, from a height of 1,479 feet.

The Admiralty chart of 1841 gives the latitude of Observation, on Albert Point, Victoria, as $22^{\circ}16'27''$ north, the longitude $114^{\circ}10'43''$ east, the variation of the compass 49 miles east, the time of high water, at full and change, as a quarter past 10; and the mean rise and fall of the tide, in Victoria harbour, as four feet and a half. *

* *Ordnance Map of Hong Kong, surveyed by Lieut. Collinson, Royal Engineers, in 1845.*

For permission to examine this map, and other Surveys and Plans of the Military Cantonments and Buildings in different parts of the island, deposited in the Royal Engineer Office, Victoria, I have great pleasure in here acknowledging my obligations to Major Aldrich, the able architect of Murray Barracks, and of the New Military Hospital, commanding and superintending the Royal Engineers in China.

The Queen's road, 50 feet wide, takes an easterly course of more than three miles from the Naval stores at West Point through the principal street of the town, and round the harbour to Wong-nai Chung, or the Happy Valley, where it divides into two branches, one of which goes round the Happy Valley, and rises over a steep hill, which bounds it on the south-east; the other continues its eastern course, several miles farther, along the shore, and then, turning southward, passes Saiwan on its left, 7 miles from Victoria, strikes over Mount Parker, and other high land, and rejoins the first branch, at the head of Taitam bay, a deep inlet of the sea on the south-east side of the island, whence it pursues a westerly course to Stanley.

From the Queen's at West Point, another road ascends, in a southerly direction, round a series of steep hills, one of them designated, in honor of the Governor, Mount Davis, to Poke-fo-loom, an agricultural hamlet, four miles from Victoria; and then winds past Singletree bay and descends to Aberdeen, two miles farther to the east. This road, carried four miles beyond Aberdeen, will unite it with Stanley, and complete the circuit of the island, 23 miles and a half in length—adding a third or western road, from Victoria to Stanley, to the two already existing, the middle through the Happy Valley and the eastern by Saiwan.

The Troops in Victoria have been quartered, some in permanent, others in temporary or hired Barracks, during the year. The permanent are the North and Murray Barracks, capable together of accommodating 864 European Non-Commissioned Officers and Soldiers, and 18 to 20 Officers. They are built at the opening of a valley, which rises gently from the harbour towards the southwest, and is formed, on one side, by the range of hills on the lower declivity of which the town stands, and, on the other, by a low spur sent from that range to the north-east, on which some Civil Government Offices have been, and others are to be built. Hence called Government hill.

The North Barracks are on the left of the Queen's road, within 110 feet of the harbour, and not more than 10 feet above the mean level of the sea. The walls are of brick, plastered and blue washed on both sides, two feet thick and two stories high, resting on a base of granite, which supports the ground floor, and elevates it two feet above the foundation. The floors are boarded, the roofs tiled. This Barrack consists of a centre, with an aspect towards the harbour, north-east by north, and two attached wings, projecting behind towards the Queen's road, respectively $46\frac{1}{2}$ feet from the extremities

of the centre, and 80 feet from each other, the whole being surrounded by verandahs on both floors. The centre is 290 feet long, 59 broad, and divided into two upper and two lower rooms, 129 feet long, $24\frac{1}{2}$ broad, the lower 15, the upper 13 feet 10 high. From each lower room are partitioned off two clothing stores, which together measure 17 feet 5 by 10 feet. In every room are twelve folding doors, two in each end, four in each side, two of them communicating with a central passage, and one with a back wing kept closed. There are 9 glazed and shuttered windows in front, and three behind, with ventilators or air holes above the lower, and under the upper floors of each room. The upper floor only has a ceiling pierced with ventilators.

Each wing is divided into an upper and lower room, 73 feet 4 long, 24 feet 2 wide, and of the same height as those in the centre, with verandahs on three sides, the fourth side being a partition wall betwixt two rooms. Each room has one door in the free, and one in the partition end (kept closed), and one in each side, close to the attached and opening into the main back verandah. There are 5 windows and 10 air holes on each side of each room. In every room of the wing, as well as centre, is one fire place.

The men's packs, accoutrements and arms are deposited, as in all the other Barracks in the island, on shelves, pegs and racks, betwixt the doors and windows. The bedsteads are of iron, made to fold during the day, and every man is allowed, in addition to his knapsack, a wooden box, 24 inches long, 15 broad, and 16 deep.

The verandahs of both floors are from 15 to 16 feet broad, that of the ground floor 17 feet, of the upper floor internally, 13 feet 10, externally 9 feet high. Though the North Barracks have been occupied since 1844, the only verandahs inclosed by jalousies, previously to this autumn, were the upper of their wings, on the west sides, where the men take their meals. At this moment, however, (10th September 1846,) every verandah, upper and lower, is being enclosed by jalousies, in fixed and moveable portions.

The upper and lower floors communicate by stair cases in the verandahs, which were eight in number, one at each end, one on each side of each wing, and two in the main front; but the last are now being removed, and one in lieu of them erected, in the central passage through the main buildings 16 feet wide, which was formerly used as a Guard house. The new staircase will branch into two, conducting to the north and south verandahs, and to the barrack rooms, on each side, and will leave open, as a promenade, the whole front

of the main upper and lower verandahs, previously obstructed by the front stair cases.

In the area betwixt the two back wings is a draw well, 15 feet deep, which furnishes water for cooking and washing.

Each of the four principal rooms accommodates

66 men $\times 4 = \dots\dots\dots 264$

Each of the four Wing rooms $38 \times 4 = \dots\dots\dots 152$

The whole barracks $\dots\dots\dots 416$

Every Soldier therefore quarter- ed in the	{ Centre has	45.43	a.	} Superficial feet.
	{ Wings	46.66	b.	
	{ Main lower floor	678	c.	} Cubic feet.
	{ Main upper floor	628	d.	
	{ Wing lower floor	700	e.	
	{ Wing upper floor	645	f.	

Betwixt the Barracks and the harbour is an esplanade or parade ground, 250 by 80 feet in size, 7 feet 4 inches above the mean level of the sea, protected by retaining walls, from the sea on the north, and from a small rivulet already noticed, on the east. On its sea side are the Barrack kitchens, wash houses, privies, Serjeant Armourer's shop and Canteen. The Barracks, outhouses and esplanade, are surrounded and kept dry by surface drains, which empty themselves, either through the rivulet, or directly into the harbour. On the south and west sides the Barracks are enclosed by a temporary palisading of barrel staves.

Beyond the rivulet on the east, and betwixt the Queen's road and harbour, is a large oblong area open to the east, inclosed on the south by the old Commissariat Office and Stores, partially on the north by two small barracks for married men, and on the west by two ranges of building, the first containing the Barrack Office and Stores, the Orderly Room, Adjutant's Quarters, &c.; the second, 4 prison cells, a lock up house, an Officers' guard room, the station Staff Office, and Serjeant Armourer's quarters. The prison cells are in two pairs, divided by a partition wall and ventilated by grated windows in it, and

- a. $129 \times 24\frac{1}{2} = 3160 - (17\frac{1}{2} + 10 =) 175 = 2,985 \div 66 = 45.43.$
- b. $73\frac{1}{2} \times 26\frac{1}{6} \text{ ft.} = 1772 \div 38. = 46.66.$
- c. $45.43 \times 15 \text{ ft.} = 678.45.$
- d. $45.43 \times 13 \text{ ft. } 10 = 628.446.$
- e. $46.66 \times 15 = 699.9.$
- f. $46.66 \times 13 \text{ ft. } 10 = 645.44.$

grated holes above the doors, each cell 12 feet long, 10 broad and 10 high. The lock-up room is equal in size to two cells.

Murray are within 150 feet of North Barracks, on the opposite side of the Queen's road, and occupy an acclivity rising gently from the road to the south-west. They consist of three ranges of building, one for officers lettered A. two for men lettered B. and C. The lower walls, piers, columns, pavement of ground-floor passages, lower flights of stairs and washing house floors, are of granite, the other floors boarded; the inside walls and ceilings plastered, the former blue, the latter whitewashed, and the roofs tiled.

Barrack A. is about 380 feet from the harbour, B. 238 feet behind A. and C. 137 feet behind B. to the south-east; A. being 14, B. 35, and C. 44 feet above the mean level of the sea; while the small rivulet, that enters the harbour on the east of the North Barracks, passes 180 feet behind Murray Barrack C., 6 feet higher than its foundation, and is there partially dammed up to supply the drains and privies with an uninterrupted stream of water. The Major General's house, recently built on an eminence in their immediate vicinity, 88 feet high, commands a near view of both Barracks and of the Hospital.

The Officers' barrack has an aspect to the north north-east or Queen's road, and with surrounding verandahs, is 204 feet in length and 63 in breadth. It has a porch 38 feet wide, projecting 2 feet from the front verandah, and three passages through it from north to south, with a stair case in each. The ground floor is appropriated to native servants, cellars and other offices, the first and second to the accommodation of Officers. Were the apartments all single they would be 12 in number on every floor, two opening on each side into every passage; but the Mess-room at the west end of the first floor, a room on the ground floor, immediately under it, and two Field Officers' quarters at the east end of the second floor, are twice the size of the other apartments, and occupy the whole breadth of the main building, 38 feet 3 by 22 feet 2 inside, and 13 feet 8 high. The smaller apartments, 10 in number on the ground and first, 8 in number on the second floor, have either a northern or southern aspect only, being divided into two series by partitions in the length of the Barracks. They are 22 feet 2 in length, 18 feet 8 in breadth, and 13 feet 8 in height.

The rooms have all folding doors, the larger two, the smaller one, with small glazed and hinged sashes above them, opening into the passages, and folding windows or glazed doors, reaching to the floor,

and provided with jalousies ; three of the large rooms have eight windows, opening into three verandahs ; one four, opening into two, two small end rooms on each floor have four, opening into two verandahs, and the rest two, opening into the front or back verandah only. The two apartments next the Mess-room being used as Ante-room and Pantry, there remain on each of the two upper floors, eight small rooms for a Captain or Subaltern each, and two large, subdivided by folding doors, which furnish accommodation for 18, including two Field Officers, or 20 Captains and Subalterns, when the former, as at present, rent private houses.

In addition to the doors and windows there are, in every room, air holes or ventilators, five in the ceiling leading to flues in the walls, several on the floor, communicating with the verandahs, adjacent passages, or apartments. Every front room, on the first and second floor, being open to the north-east or hotter winds, is provided with two additional ventilators for the transmission of air from under the ground floor by flues excavated in the longitudinal partition, and commencing at its base on opposite sides, so as to admit fresh air from the one or the other as the wind may blow. The ground floor of all the new Barracks, as well as of the European Hospital, is raised above their base 15 or 16 inches, and the intermediate space supplied with air through holes or openings, generally 6 inches square, cut through the piers or outerwalls. Of such there are 10 on each side and 3 at each end of the Officers' Barrack, 26 in all. Ventilation is further promoted by circular air holes in the verandah ceilings, which communicate through the joists with the partition flues, before they terminate in the front apartments, as well as with the roof by the ordinary flues in the main walls.

The principal and verandah roofs converge in their descent, to leaden gutters, from which the rain is conducted in cast iron pipes laid into the main walls, and carried under the basement verandahs, and thence discharged through the air holes into channel drains which surround each barrack.

The side verandahs are 196, the end verandahs 59 feet long. They are paved with marble, on the two upper, and with Portland stone on the ground floor, and supported by piers on the ground, by Doric on the first, and by Ionic columns on the second floor, the number on each being 48 ; that is 18 on each side, with two in addition for the front porch, and 5 intermediate at the ends. The Doric are 2 feet in diameter at their base, and 10 feet 7 high, with a

plain entablature, 3 feet 3 inches deep, making the height of the first floor verandah 13 feet 10. The Ionic columns are 17 inches in diameter at their base, and reach to the ceiling of the second floor 13 feet 10 high. The shaft of every column, whether round or square, in the new Barracks and hospital, is of one piece, though it was left optional with the Chinese contractors to make all or any of them of three stones. Betwixt the columns above are fixed jalousies, four feet deep on the first, six feet deep on the second floor, and below, a latticed railing 2 feet 9 high, with intervals of 3 feet 10 and 5 feet 1 respectively, betwixt them. The jalousies and railing are of a maroon colour, and the intervals are being filled by the Officers themselves with green bamboo curtains manufactured in Canton.

Behind the Barrack are the Officers' kitchens—bath rooms 10 in number; privies, five for Officers, one for servants, and stables for 6 horses, with accomodation for 3 grooms. The kitchen is joined to the mess room by a covered way connecting together the three Barracks.

The Bath rooms and Privies are in one interrupted range, divided by a longitudinal partition, under which passes a drain supplied with water by a pump well at the east end, through a covered cistern provided with a lock, by which the water may be let off with sufficient force to carry the soil of the privies with it. There is another lock at the opposite end. Behind the Barrack near the kitchen, is a second pump well 17 feet deep, the first being 22.

The Men's Barracks, B. and C. have a north-eastern aspect, and correspond exactly in construction and size. They are 248 feet long, 53 feet 8 wide at the ends, and 57 in the centre. They have three stair cases, one central, one in each front corner. The two upper floors are Barrack rooms, the ground floor Offices and Staff Serjeant's quarters. On each upper floor are four principal rooms, one on each side of the central stair case, one at each end. Verandahs in front and rear are replaced 27 feet from each end, by outer walls, which project 13 inches beyond the verandahs, and enclose in front the lateral stair cases and behind small apartments for Pay Serjeants with lobbies attached. A central porch, 21 feet 9 wide, projects three feet and a half beyond the verandah, on each side.

The Barrack rooms are 22 feet wide, 13 feet 10 high, the central 54 feet 6, the terminal 56 feet long. The former accommodate each 26 men and a Serjeant, for whom a small apartment is cut off

by jalousied partitions, the latter accommodate each 29 men. In every room four windows open on each side, in the end rooms two additional open, east or west. In each central room are 6 doors, two communicating with the contiguous end room, one with the front, another with the back verandah, and two with the stair case, one only of the last being applicable to use. Square ventilators, under every window, and in the transverse partition walls admit, and under the ceiling, give issue to the air. In the ceiling of every room on the second floor, are three additional ventilators ornamented with stucco mouldings. The shelves, pegs and musquet racks in Murray Barracks, as well as the bedsteads, are of iron.

The apartments on the ground floor are 12 in number, 12 feet high and appropriated to the use of the Non-Commissioned Officer for duty—School-room—Quarter Master Serjeant—Quarter Master's Office and Stores, and Washing houses, of which there are two at each end, or one for every 115 men. These are paved with granite, slightly sloping to a cesspool in the centre, and furnished with locked and stop-cock water casks, washing tubs, and a definite number per Company of smaller sized tubs in lieu of wash-hand basins. The water is at present carried by coolies, but it is intended to have iron tanks with pipes, through which the water may be pumped from the wells. The washing are the only rooms on the ground floor provided with ventilating holes.

The side walls and the piers of B. and C. Barracks are two feet four, the end walls two feet and a half thick. The verandahs are 193 feet 7 long, 12 broad, that of the first floor 13 feet 2 high, of the second 12 feet 3 at the inner, 9 feet 9 at the outer side. The two upper are enclosed by green jalousies fixed above and below, moveable in the middle to the height of 3 feet 10. The verandah ceilings, betwixt the doors and windows are pierced by numerous grated openings for the passage of the heated air into flues in the walls.

The middle rooms of both floors, eight in number in the two Barracks, accommodate each 26 men and 1 Serjeant... $27 \times 8 = 216$

The end rooms each 29 men $\times 8 = 232$

Eight Pay Serjeant's rooms (1 of them for 2 Serjeants). 9

Three Staff Serjeants on basement of the two Barracks 3

Total... 460

Every Soldier therefore quartered in

The Centre rooms has	$\left\{ \begin{array}{l} 44^a \\ 614^b \end{array} \right.$	$\left\{ \begin{array}{l} \text{Superficial} \\ \text{Cubic} \end{array} \right.$	} feet.
End rooms	$\left\{ \begin{array}{l} 42\frac{1}{2}^c \\ 588^d \end{array} \right.$	$\left\{ \begin{array}{l} \text{Superficial} \\ \text{Cubic} \end{array} \right.$	

Midway betwixt B. and C. Barracks are the Cook house and Privies, two heavy, plastered, blue-washed, brick buildings, 60 feet square, 21 feet 9 inches high, and 50 feet apart, without a single window in either, being lighted from the sky above. In the centre of the Cook house is a dust pit surrounded by an open area 24 feet square, at the sides of which are 8 piers, 8 feet and a half high, supporting the lower edge of the roof which slopes from the walls downwards and inwards like a square truncated funnel. There are ovens in the 4 corners; on the north and south walls are 20 boilers, and on the west a stewing range for the men. On the east wall, on opposite sides of the only door in the building, a boiling and a stewing range for the Serjeants' mess.

The Privies are six in number, four for the men, separated by screen walls, with a common entrance from the west, and a roof similarly constructed to that of the Cook house; two of them on the north, two on the south, with an urinary on each side of the door in the west wall—one for Serjeants, one for women with separate entrances from the east, but a common roof. The total number of seats is 50—10 in the Serjeants', 8 in each of the Men's ($8 + 4 = 32$), and 8 in the women's privy. They are kept perfectly sweet and clean by the stream of water passing through them from the main drain. Two cesspools transmit the rain from the roofs and central area to minor drains, which wash the urinaries on their way to the main drain.

At equal distances betwixt B. and C. Barracks are two pump wells, one to the west of the Cook house, the other to the east of the Privies: into the latter water may be pumped through a channel from the well.

The main drain is of granite, with an arched brick roof and concave floor, three feet three inches high, and two feet and a half wide.

$$\begin{array}{lcl}
 a & 54 \text{ feet } 6 \text{ in } \times 22 = & 1,199 \text{ feet } \div 27 = 47. \\
 b & 1,199 \text{ feet in } \times 13 \text{ feet } 10 = & 16,586 \div 27 = 164. \\
 c & 56 \text{ feet in } \times 22 = & 1,232 \text{ feet } \div 29 = 42\frac{1}{2}. \\
 d & 1,232 \text{ feet in } \times 13 \text{ feet } 10 = & 17,043 \div 29 = 588.
 \end{array}$$

It begins 50 feet above the level of the sea, about 260 feet behind Barrack C. and passes under the south retaining and boundary wall — the centre of the men's — a little to the west of the Officer's barracks and under the Queen's road — in a course of about 800 feet, to its termination in Victoria harbour.

The European Military hospital is on the left side of the Queen's road, a little way to the east of the north Barracks, and separated from them by the Commissariat wharf, the old Engineer Offices, several private houses and the Canton bazaar. It consists of a centre with two attached back wings, and two separate wings in front, three stories high, built of granite and brick on an enclosed area, 920 feet in length, 380 in breadth, and 16 feet above the level of the sea. Deprived of its wings the Military Hospital, though differently divided internally, would be an exact counterpart of B. or C. Barrack.

The principal building like them is 248 feet long and 52 feet 8 broad, with a projecting porch, and outer walls, and verandahs betwixt them in front and rear; a staircase in the centre and one at each end, but in the back instead of the front corners. The ground floor is appropriated to Offices and native servants, the two upper to the sick. Each upper floor is divided into four wards and a Hospital Serjeant's room. The breadth of the wards is 22, the height 14 feet, the length of those next the central staircase for 17 patients and an orderly, 54 feet 6 inches — of that in the west end, for 18 patients and an orderly, 56 feet, and of that next the Serjeant's room to the east, for 13 patients, 43 feet. From the middle and west wards small square apartments are partitioned off for Orderlies. The back verandah occupies the interval betwixt the two attached wings, the front verandah an equal space betwixt, and one foot behind, the outer front walls, which extend 27 feet from the corners. At the west end in front is a fifth small ward on each floor, for two patients, 13 feet 3 by 10 feet 9 in size, with a lobby betwixt it the verandah and west ward. These two floors furnish accommodation for 134 sick, namely :

17	in each of the 4 central wards =	68
18	2 end =	36
13	2 eastern =	26
2	corner wards =	4

and give each patient

66^a superficial, 932^b cubic feet in the central.

65 ^c	907 ^d	end	} Wards.
73 ^e	1,019 ^f	.....	eastern
71 ^g	996 ^h	.....	corner

The windows are two feet 9 from the floor, and their openings 7 feet 10 high, and 4 feet 3 wide. Over the doors are glazed and hinged sashes. The central wards have four windows and one door opening into each verandah, and two doors at each end, one of which is kept closed. The others have doors and windows in proportion to their size, all being exceedingly well lighted and ventilated. The east and west wards have one fire place only, the central, one at each end. The bedsteads are of iron with canvass bottoms, and there are wooden shelves betwixt the windows.

At the east end of each upper floor is a Hospital Serjeant's room, corresponding in length to the breadth of the wards, added to that of the front verandah, and 11 feet 3 wide, with a lobby from it into the verandah and east ward.

The ground floor verandah is supported by piers, the two upper by square Doric columns, of which there are four under the porch and eight free on each side. The verandahs are 193 feet 6 inches long and 10 feet wide, within the jalousies; the height of that of the first floor is 14 feet 7 inside, 14 feet 3 outside; of the second floor 13 feet 1, and 8 feet 10 respectively.

The Central stair case takes 15 feet from the length of the hospital, and gives a passage through it on the ground floor. On the first floor it opens into the front, on the second into the back verandah only. To its right or west on the ground floor, are a surgery for a regiment of the Line, a waiting room, a Native servant's room, and the medical Depot, consisting of two apartments for Apothecary's stores, 22 feet wide, 11 feet high, the first 20 feet 3, and second 53 feet long. To the left of the stair case are a hospital guard room, a small prison

$$\begin{array}{l}
 a \quad 54\frac{1}{2} \times 22 = 1,199 \div 18 \text{ (including the orderly)} = 66. \\
 b \quad 1,199 \times 14 = 16,786 \div 18 = 932. \\
 c \quad 56 \times 22 = 1,232 \div 19 = 65. \\
 d \quad 1,232 \times 14 = 17,248 \div 19 = 907. \\
 e \quad 43 \times 22 = 946 \div 13 = 73. \\
 f \quad 946 \times 14 = 13,244 \div 13 = 1,019. \\
 g \quad 13\frac{1}{4} \times 10\frac{3}{4} = 142\frac{5}{8} \div 2 = 71. \\
 h \quad 142\frac{5}{8} \times 14 = 1,994 \div 2 = 996.
 \end{array}$$

ward, a servants' room, a bedding and clothing store, and a smaller surgery, for the Royal Artillery, Sappers and Miners, corresponding in position and size to the Serjeants' rooms on the upper floors. In the west corner of the front verandah is a small servants' room, corresponding to the 2 small wards perpendicularly above it.

The attached wings are 27 feet wide and project 35 feet behind the back verandahs, from which a passage enclosed by an inner wall leads to four apartments on the upper floors, the two smallest at the ends, for water closets (one single for Officers, one double for patients) —two for bathing and washing rooms ; and on the ground floor, one for a furnace and forcing pump, a coal house, a native servants' room, and a water closet, respectively.

Sixty four feet above the ground floor under the roof of each wing, is a leaden cistern 8 feet long, 4 wide and $2\frac{1}{2}$ deep, for supplying with water the bath rooms, washing rooms, water closets, two medical store rooms and surgeries. It is filled by a forcing pump from a well 17 feet deep at each end of the hospital ; and from this pump is sent a pipe to supply the kitchen boilers. The bath and washing rooms at the east end have been in this way supplied with water from the first occupation of the hospital. But the fittings for the water closets and the forcing pump and pipes at the west end, have only recently arrived from England and are now being put up.

The detached wings are 12 feet to the east and west, and 15 feet in front, of the main building. The right or west, with outhouses attached, is at present occupied by the Royal Engineers, who have an Office and Mess house, as well as quarters for Officers there ; the left was originally designed for a Female hospital, and Quarters for one sick and three Medical Officers ; but want of room, in the central building, has made it necessary to accommodate sick soldiers, instead of their wives, in the two principal wards.

The left wing is 120 feet long, 52 feet broad, and has outer walls, 27 feet at the sides, 15 at the ends, from each corner, projecting one foot beyond the verandahs between them, which are 66 and 22 feet long respectively. The side verandahs are supported by 5, the end by 2 piers on the ground floor, by the same number of square Doric columns on the first and second ; their breadth within the columns is 9 feet 6, without 11 feet 10. The inner breadth of the end verandahs is 6 feet 8, the outer 8 feet 3. A wooden partition in the side verandah, jalousied above with a door of communication, divides the Female hospital from the Officers' quarters. Each division has a

stair case in the front corner, and consists on the ground floor of three, on the upper floor of two apartments. The western apartment on the first and second floor, is a hospital ward, 38 feet 6 in length; that next to it a matron's room, 11 feet 6 by 22, which is the breadth of all the apartments: on the east of the partition are two Officers' quarters, the first 19, the second $27\frac{1}{2}$ feet in the length of the wing. The largest is subdivided into two by a jalousied partition and folding doors. Enclosed by the outer wall at each end of the back verandah of each upper floor, is a lobby, a bathroom, and water closet, to be provided with a forcing pump and a cistern at each end for the supply of water from the eastern well.

On the ground floor under the Officers' quarters are two rooms for Officers' servants, and one marked Principal Medical Officer's Office. But the last, were it otherwise eligible, cannot in this climate be used as such in consequence of its distance from that Officer's house. Corresponding to them on the west, are a matron's store, hospital servants' room and hospital store. In the north-west corner a furnace room and coal store, in the north-east two small cellars.

In the centre are 20, and in the left wing 13, square holes, through the piers and walls, for the passage of air under the ground floor which, as in Murray Barracks, is 15 to 16 inches above the foundation. Under every window is a grated opening, for the direct passage of the air into the wards, but which may be closed when required; and, in the ceiling of the verandahs and under that of the wards, betwixt the doors and windows, are the openings of numerous flues, which transmit the heated air through the walls to the roof of the building. There are also two air holes, opening directly into every chimney, near the ceiling of the partition walls.

The east wing furnishes accommodation for 4 officers, 2 orderlies and 32 patients, namely:

12 Patients in each of the larger wards $\times 2 = 24$.

4 Patients in each of the smaller wards $\times 2 = 8$

and gives each patient 32;

65 (a) superficial, 911 (b) cubic feet in the larger } wards

63 (c)..... 885 (d) smaller } wards

$$a \ 38\frac{1}{2} \times 22 = 847 \div 13 = 65.$$

$$c \ 22 \times 11\frac{1}{2} = 253 \div 4 = 63.$$

$$b \ 847 \times 14 = 11,858 \div 13 = 911$$

$$d \ 253 \times 14 = 3,542 \div 4 = 885$$

[orderlies included].

The centre and left wing together, therefore, of the European Military Hospital furnish accommodation for 166 patients.

Thirty two feet behind the left wing, and corresponding to the eastern half of its breadth, are three sides of a small court, the west formed by the hospital kitchen—with one oven and six boilers—a room for foul linen, and three bathing rooms; the north by three Officers' kitchens and servants' rooms; and the east by an Officers' and servants' privy, with a coal and a wood-house, betwixt them. The north side is prolonged beyond the court towards the hospital, by a smaller hospital kitchen with stewing and hot water ranges, a scullery, and a larder. This court is enclosed and joined to the left wing and hospital by short walls with a gateway in each.

Betwixt the court and the harbour are, a stable of three stalls, with a forage store; a dead house, lighted from the roof, subdivided into two apartments,—each $15\frac{1}{2}$ by $8\frac{1}{2}$ feet in size; and (in one block) an ash pit, wood house, coal house, and two privies with urinaries. In the north-east corner of the hospital, where it gives off the attached wing, betwixt the stair case and Royal Ordnance surgery, is a provision well, six feet square, for hoisting the food of the patients, by means of a crane, from the ground to the first and second floors.

The rain from the roofs passes by channel drains, surrounding the hospital and outhouses, with cesspools at their corners, into minor barrel drains, and thence into the main drains, which are two in number, one at each end. Both terminate in Victoria harbour, the east close to Wellington battery, after receiving the contribution of the surface drains of the corresponding wing, kitchens, &c. a barrel drain from the eastern well, through which water can be pumped into the Officers' privy, and the waste water from the attached wing, kitchen, scullery, outside privies, dead house and stables. Before joining it, five minor drains from the outside bath houses and kitchens, unite and pass through the servants' privy.

The second principal drain begins at the west wing, and enters the harbour nearly opposite the western extremity of the hospital.

A considerable part of the ground in the immediate vicinity of the hospital, and comprised within the boundary already assigned to it, has been gained from the sea. Behind the hospital is an area covered with gravel, 270 feet long and from 170 to 120 feet wide, defended from the encroachments of the tide by a thick wall of granite on the west, and by Wellington battery of nine guns on the east. In front of the hospital is another area 270 by 110 feet, which is sepa-

rated from the Queen's road by a dwarf wall, surmounted by a wooden railing. These areas have been tastefully laid out by the Engineer department, in gravel walks and grass plots, and planted with trees, shrubs and flowers.

The foundation of the

Officers' Barrack A. was laid	6th Sept. 1844.
Men's Barracks B. and C.	19th Nov. ...
European Hospital	3rd Nov. ...
Detached Wings D. and E.	28th Dec. ...

Murray Barracks were first occupied on the 8th January 1846, by 95 men of the 18th regiment, who took possession of one floor of Barrack C., the only part then finished. The other floor was ready for 105 more on the 6th April, and Barrack B. being completed a week later, 186 men moved into it on the 14th April, when the detachment of the 18th regiment was wholly withdrawn from Stanley and replaced by the 42nd M. N. I.

The sick of the 18th Royal Irish regiment took possession of the second floor of the hospital on the 13th February, and the sick of the Royal Artillery, Sappers and Miners, of a ward on the 1st floor on the 11th March.

The whole of both floors and of the left wing, have been since appropriated to the sick of these Corps, and as quarters for three European, and one Native, Medical Officers, attached to them.

On Artillery hill to the south of the Queen's road, and directly opposite the European Military, is the Native Ordnance Hospital with temporary barracks for the Royal, as well as Madras, Sappers and Miners, and China Gun Lascars. The Royal Sappers and Miners occupied, till near the end of the year, two small brick barracks, facing each other on the east and west sides of a parallelogram 220 by 110 feet in length and breadth; the south-side being formed by the hospital, a native Guard house, and a room for the Madras Sappers and Miners, and the north left open on the brink of the hill, which has been here cut away perpendicularly for the Queen's road to pass. The Hospital range is 76, the side Barracks 60 feet above the level of the sea. Behind this square at various distances, are two quarters for Officers, 99 and 117, a store room 110, and mat buildings for Gun Lascars, 76 feet above the sea.

On a ridge, 80 feet high, to the east of Artillery hill, and divided from it by a small rivulet, which forms the eastern boundary of the new Arsenal and European Hospital, is the Sepoy or Madras

Native Infantry Hospital with quarters for the Assistant Surgeon in charge, and for a European Guard over a powder magazine, on the western declivity of the ridge. The hospital consists of a single apartment, 148 feet 7 long, 22 feet 4 wide, with walls 12 feet high and a plank ceiling, which slopes inwards, two feet higher, and then stretches horizontally under the roof. It is surrounded by a verandah, 11 feet wide, one end of which, 46 feet 4 inches, and a portion on each side, 28 feet 10, in length, is enclosed for the accommodation of patients, with a small additional portion for a Hospital Guard Room. The floor is boarded, and 5 inches above that of the verandah, which is paved with brick tiles and raised 7 inches from the foundation. The hospital is well ventilated and intended for 100 men, giving 42 square feet to each.*

The cook house and privy are on its south-west side; the latter rather too near it to be agreeable, but the ridge is very narrow. The Surgery, Native Apothecary's Quarters, and Assistant Surgeon's kitchen, in one building, at the north-west end.

The 42nd regiment M. N. I., in Victoria, occupied temporary Barracks erected higher up, in the same valley as Murray Barracks, and within 150 yards of Barrack C. from their arrival in China in May 1845 to the 25th March 1846. They were seven in number, arranged in two groups on opposite sides of the rivulet that feeds the drains of Murray Barracks; constructed of mats, with floors, internal walls, and ceiling of planks; the windows glazed only alternately on each side, but all provided with folding shutters. These Barracks were found too small for the strength of the regiment in Victoria, and 100 men of the 42nd were quartered, from 6th July to 6th December in Gillespie Barracks, a hired house on the sea shore, at the east end of the town, which was formerly rented for a European hospital, and consists of a large upper floor with store rooms below.

From 9th January to 13th March, the same barrack was occupied by 68 men, a draft of the 98th regiment, which had been withdrawn from Saiwan, from the extraordinary number attacked with Ague. At the last mentioned date it embarked for the Head Quarters of the Corps at Chusan.

Since 25th March last, the 42nd Regt. M. N. I. have occupied

* $148 \text{ feet } 7 \times 22 \text{ feet } 4 = 3,318 \text{ feet } 4 + (46 \text{ feet } 4 \times 11 \text{ feet } 8 + (28 \text{ feet } 10 - 11 \text{ feet } 8 = 17 \text{ feet } 10 \times 2 \times 11 =) 392 \text{ feet } 4 = 3,710 \text{ feet } 4 \div 100 = 37.10$

substantial, hired, brick buildings on the sea shore near the west end of the town, which furnish accommodation for 438 men. The principal of these had been previously used as a hospital, by the 18th regiment, and forms a small square, the north side of which consists of two floors, about 80 feet long, 60 broad, the upper 12 feet 9 high. The sick occupied the upper floor of this side only, divided into 5 wards. A back verandah, 84 feet by 11 feet 8, in length and breadth, offers an excellent view of Victoria harbour and the opposite coast of China. A stair case, at each end of the verandah leads to the ground floor and a back court open to the harbour. The lower floor, 16 feet and a half high, has been boarded and is now occupied, as well as the upper, by the 42nd regiment M. N. I.

Two small buildings on Kellet's island, a rock near the eastern boundary of the harbour, 40 feet high, have furnished occasionally temporary accommodation for an Officer and 30 men. The draft of the 98th regiment, already referred to, on its first arrival in September 1845, was accommodated partly here, partly in the Royal Artillery quarters.

During the whole year the detachment of the last mentioned Corps occupied two upper floors of a hired house in Hollywood road, an elevated and healthy part of the town; and their sick, with those of the Royal Sappers and Miners, the Madras Artificers and the Civil Ordnance Department entitled to hospital treatment, were accommodated in the same building, up to the 11th March 1846, when they were transferred to the New Military Hospital.

From 7th December 1845 to 6th April 1846, 100 men of the 18th Royal Irish regiment, relieved at Stanley by a company of the 42nd regiment M. N. I. occupied the old Commissariat Offices on the east of North Barracks, and the Royal Sappers and Miners are now there.

The Military post of Stanley occupies a narrow neck of land on the south-east side of the island, betwixt Check Choo village and Bay on the west, Taitam Bay on the north-east, and Taitam Peninsula, about a mile and a quarter long, and at its extremity three quarters of a mile broad, on the south.

The permanent buildings are an Officer's Barrack, a house for the Commandant and 2 Officers next in rank, another for an Engineer Officer, a Guard House, a Serjeant's Mess, a School-room and a Hospital. The temporary are six barracks for the men, with offices attached to them.

No. 1 and 2 Barracks, the Hospital and the Guard House, are built on an embanked parade ground, from 60 to 65 feet above the level of the sea, separated from Check Choo village by a low projecting point of land, open to the south-west monsoon, and sheltered on the north-east, by a moderately elevated ridge, on the sides or summit of which the other temporary barracks, the Officers' barrack and Houses, and the Canteen stand. The Officers' Barracks, Commandant's house, Hospital and Main Guard are two stories high, all the other buildings one. The floors of the temporary barracks are boarded and raised several feet above the foundation, the walls are of brick whitewashed but not plastered, the roofs tiled, the verandahs, of which the corners are generally converted into Serjeants' quarters, are paved with brick flags. Every barrack is surrounded by a surface drain, with kitchens, wash-houses and privies, at the ends or sides. The windows are four feet high and three wide. There are generally ventilation holes in the walls, but the house of the Engineer Officer is the only building provided with such for the passage of air under the ground floor.

The Guard House is divided into a guard and two dry rooms below, an orderly room and six cells above, each cell being 10 to 11 feet square, 12 feet 2 high, with openings for ventilation on the level of the floor, over the doors, and under the ceiling. The verandah is jalousied.

No. 1, the least elevated of the barracks, is close to the Main Guard, at the north end of the parade, 53 feet above the sea, with a south-westerly aspect. It consists of one large room with small apartments in the front corners of the open verandahs, for two serjeants, the former 128 feet long, 17 wide, the walls 14 feet 9 inches, the ridge pole 18 to 16 feet high. The walls of this barrack are lined with boards. It has 10 doors, 2 in each end, 4 in each side, and 14 windows, provided with shutters but neither glazed nor jalousied.

Near the hospital, *at the opposite end of the esplanade*, but raised thirteen feet above it and 78, above the sea, is No. 2 Barrack, with the same aspect as No. 1, consisting originally of one large room, and four for serjeants in the verandah corners, the former being 166 feet long and 22 broad, the walls 15 inches thick, 11 feet 2 high, and the ridge pole 4 feet above them. It has 2 doors in each side, 2 in each end, and 32 window openings in all, besides 24 lower, and 28 upper ventilators. The verandahs 11 feet 7 wide are enclosed by outer walls with glazed and shuttered windows. The permanent buildings were begun in January and completed in December 1843.

The hospital was originally intended for a barrack. Its foundation is 6 feet above the parade and 71 feet above the level of the sea: its aspect nearly north. Each floor consists of one large ward and four small rooms in the verandah corners; these last, on the ground floor, being a surgery, bath, store and Hospital Serjeant's room, on the upper a native Apothecary's room, two for Orderlies, and one for two patients. The ground floor of the ward is $3\frac{1}{2}$ feet higher than that of the verandah. The lower verandah is 19, the upper 12 feet high, both 14 feet 2 wide, to the outside of the columns supporting them. There are four stair cases, one at each end of the front and rear verandahs. The wards are 100 feet long, 24 wide, the lower 14 feet 8, the upper 12 feet 10 high. In each are 4 doors and 16 windows, the latter $4\frac{1}{2}$ by $3\frac{1}{2}$ feet in size. The upper sashes only admit of being opened. On each floor are 32 ventilation holes. The bedsteads are of wood, with cane bottoms, and betwixt them small moveable medicine stands. This hospital furnishes accommodation for 37 patients in each large, and 2 in the small upper verandah ward, 76 in all, and gives every patient in the large upper ward 65 (*a.*) superficial, 832 (*c.*) cubic feet, and in the ground floor ward, 65 superficial, 951 (*b.*) cubic feet.

The Officers' Barrack is directly behind and to the north-east of the Guard House, 40 feet higher, and 98 above the level of the sea. On its left is the Commandant's house at the height of 126 feet: then in succession, along the ridge to the south-east, the Engineer Officer's house, with a small quarter near it, for one Corporal and 3 Privates of the Royal Sappers and Miners—the Canteen behind No. 2 Barrack—No. 4 Barrack with a westerly aspect, slightly inclining to south, 135 feet high—the Royal Artillery Barrack 144 feet high but with a north-westerly aspect, and immediately behind it No. 3, the highest of all the barracks, on the summit of the ridge which divides Check Choo from Taitam bay, 155 feet above them. On the eastern side, the ground rapidly falls to Taitam bay. Near the north-east corner of No. 3. is the Married Men's Barrack No. 5, and, on its south-west, the Royal Engineer's Office with accommodation for a Clerk of works. The Cantonment covers a surface of at least 1,000 by 600 yards; its north-western extremity passes 250 yards beyond the Officers', and its eastern extremity from 50 to 500 yards, beyond

$$a. 100 \times 24 = 2,400 \div 37 = 65.$$

$$b. 2,400 \times 14 \text{ feet } 8 = 35,200 \div 37 = 951.$$

$$c. 2,400 \times 12 \text{ feet } 10 = 30,800 \div 37 = 832.$$

No. 3 Barracks. On both sides of this line to Taitam bay, is a considerable number of paddy fields, from 60 to 30 feet above its level, the nearest within 100 yards of the Barracks.

The upper Barracks, and more particularly No. 3, have always been considered the most unhealthy. In August last the 18th detachment was, in consequence, wholly withdrawn from them and quartered in No. 1, and on the ground floor of the Officers' Barracks. Though every attention has been given to draining and ventilation, in their construction, they are still very damp, during the heavy rains and stormy weather of the south-west monsoon; but No. 1, being lined with timber is less damp, and has the reputation of being more healthy than most of the others, notwithstanding its low position and narrow dimensions. During my first inspection of Stanley in August 1845, I found that of 106 patients, then in hospital from a strength of 377 men—40 had been admitted from No. 3 Barrack, on the highest ridge, 31 from No. 4, on a somewhat lower level near the Canteen, and only 16 from No. 2, on the Esplanade, three barracks of the largest size, and all having the verandahs enclosed by outer walls.

The privies of some of the barracks are at a very inconvenient distance, that of No. 4 for example is 24 paces from its western, and above 100, from its eastern extremity. At my recommendation, after the visit referred to, covered ways were made betwixt the barracks and privies, and 4 night chairs, with 2 urine tubs, placed in the verandah, on the lee side of every upper barrack, for use in the night; but to be emptied every morning at day-break.

The Officers' barrack is 186 feet long, by 60 broad. The verandahs are supported on each floor, by 28 square columns, 12 on each side, two intermediate at each end. The ground floor is 3 feet 6 above that of the verandah, and divided into 9 Officers' quarters, each measuring 17 feet 2 in the length, and 30 feet in the breadth, of the building, and subdivided into two apartments of unequal size, by jalousied partitions, the one opening into the front, the other into the back verandah. Since August 1845, 60 men have been quartered in 6 of these lower rooms, 10 in each. The first floor is divided into a mess room, 37 feet by 30 in size, an ante-room, pantry and Mess waiter's room, at one end; into 5 Officers' quarters, corresponding to those on the ground floor, at the other. In the back verandahs, above and below, are small servants' rooms, corresponding in number to the Officers' quarters. There is a staircase

in each corner of the verandah, and, behind the building, kitchens, stables, privies, and other offices.

The undescribed temporary barracks so much resemble No. 1 and 2, that it is unnecessary more particularly to notice them. The whole furnish accommodation for about 350 men.

There are three wells, for the supply of the post with water, one on the parade near No. 1 Barrack, another on a lower level, betwixt the Guard house and Check Choo bay, and a third at a little distance behind and below the Officers' Barracks.

Saiwan is seven miles from Victoria, a little to the south of Lymoon pass, which separates Hong Hong on the north-east from the main land. It is 200 feet above the level of the sea, on the side of a hill, which rises to the west from a small narrow peninsula in Saiwan Bay. This bay has Mount Parker on its west, 1,753, and Pottinger Peak on its south, 1,070 feet high, but is immediately bounded in both these directions by lower hills which are cut into terraces, rising behind each other, near their base, for the cultivation of rice. The rice fields are fed by streams, from between the hills which fall into the bay, and the mixture of which with its water, remains stagnant during the ebb tide, and doubtless contributes to the remarkable prevalence of Ague at this station.

The Barracks are built on a platform, 290 by 270 feet in length and breadth, while the cantonment occupies a surface of 1,900, by 1,500 feet at one end, and 1,100 at the other. The buildings are permanent and were completed in 1844. They consist of a house for one Captain and four Subalterns; a Barrack, originally intended for 100 Europeans; but by the more liberal accommodation now given by the Ordnance Department, appropriated to 84 only; a hospital, planned for 25, and now furnishing 18 patients and 2 orderlies, with 900 cubic feet each, the maximum allowance; and a guard house, with a dry room, 3 cells and an Orderly room, as well as Guard room in it. The Officers' Quarters are 12 feet above the level of the men's, while the Hospital and Guard house have an elevation intermediate betwixt them.

The Men's barrack has a north-easterly and south-westerly aspect, and consists of one large apartment in the middle, and 3 small at each end of each floor, with spacious verandahs betwixt the last, in front and rear, and openings, which form door-ways on the ground floor, betwixt them at the ends. The walls of plastered brick are 2 feet thick, floors boarded, roofs tiled, windows glazed and jalousied, the

lower ventilators guarded externally by iron bars, and provided within with sliding shutters. The large rooms are 84 feet long, 22 broad, 12 high, on the ground, 13 on the upper floor. Four of the smaller rooms are used as the Canteen Serjeants' Quarter, and Clothing Store. The rest, as well as both large rooms, are appropriated to the accommodation of Non-Commssioned Officers and men.

Each floor of the Hospital consists of a ward, 35 feet long, 21 feet 10 inches broad, and 12 feet high, with a stair case at one end, several small apartments in the corners of the other, for hospital Serjeant, Surgery and Stores, and verandahs betwixt them. The dimensions of the two wards together are 1,558 square, 18,340 cubic feet, which, at 900 per man, the maximum hospital rate, gives accommodation for 18, and at the minimum rate of 700 per man, 24 patients, and 2 orderlies.

The post is supplied with water from a stream betwixt it and Mount Parker. In addition to surface drains of granite, which surround every building, there is a large semi-circular trench, about 100 feet from the west end of the Officers' quarters, and on a higher level, 7 feet deep, and 5 or 6 wide, which materially contributes to the dryness of the surface, by diverting the water from the summit and higher parts of the hill, into vallies on either side terminating in Saiwan bay.

II. ON THE HEALTH OF HER MAJESTY'S EUROPEAN TROOPS, SERVING IN CHINA, FROM 1ST APRIL 1844 TO 31ST MARCH 1845.

On my arrival in Hong Kong, on the 23rd July 1845, the Annual Sick Returns and Reports, due on the 31st March of that year had not been prepared ; nor did materials exist in the Principal Medical Officer's Office for compiling them. In August I received those of the 18th Royal Irish regiment, stationed in Hong Kong ; but the Return required to be re-written, as it embodied sick of the 98th regiment, treated in the 18th Hospital, whose cases should have been given in a supplementary form. Mr. Cowen, Surgeon of the 98th regiment, had sent the Annual Return and Report of that corps direct to England in June, and the copy, for which I applied, reached me from Chusan in December. These, with the Quarterly Sick Returns of the Royal Ordnance hospital, have furnished materials for the annexed Abstract of the admissions and deaths, referable to different diseases, and different classes of diseases, among the European troops in China during the year, with the accompanying observations. I have no materials for a corresponding abstract of the

sickness and mortality, among the troops of the Honorable East India Company's Service, copies of their sick Returns having been kept in my Office, since the 1st of April 1845 only.

The Queen's Troops, serving in China during the year, were the 18th Royal Irish regiment, stationed chiefly in Chusan, the 98th and small bodies of the Royal Artillery and Royal Sappers and Miners, stationed in Hong Kong; the average strength of the first being 880 non-commissioned Officers and Privates, of the second 924, of the third and fourth together 63, and of the whole 1867.

At the beginning of the military year, the left wing of the 18th regiment occupied cantonments in Ting-hae, the capital of Chusan, and a detachment of 3 Officers and 34 men, the out-post of Sinkea-mun, on the eastern side of that island. The right wing moved from Koolungsoo to Chusan, on the former being given up to the Chinese, and arrived at Ting-hae, in three divisions, on the 10th April, 14th and 16th May. On the 13th July, 10 men were sent to Hong Kong, to be attached to the Police force, and on the 16th the Sinkea-mun detachment was withdrawn. On the 22nd February 1845, the right wing, composed of 10 officers, 414 men, 21 women and 11 children, embarked for Hong Kong, leaving the left wing at Ting-hae.

During the greater part of the year, the head quarter station of the 98th regiment, from 300 to 400 strong, was Check-choo, now called Stanley, about 9 miles from Victoria, and on the opposite or south side of the island; another division, nearly 500 strong, being in Victoria. In May and September, two parties of convalescents, each 50 in number, were sent from Hong Kong to Chusan for change of air; and in the beginning of January 1845, the Victoria division embarked for Chusan, to relieve the right wing of the 18th.

The average strength of the European force, from 1st April 1844 to 31st March 1845, was 1867; the admissions into hospital 5,887, which give a ratio of 315 per cent. The deaths in hospital were 241 in number; that is, 128 per 1000 of the strength, and 41 per 1000 of the admissions.

Of the 5,887 cases admitted,

2,723 or 462 per 1000 were referable to... Fevers.

1,310 — 222 Stomach & Bowel com:

308 — 52 Diseases of the Lungs.

48 — 8 Brain.

28 — $4\frac{7}{8}$ Liver.

16 or $2\frac{7}{10}$	.....	Dropsies.
161 — 27	.....	Rheumatism.
153 — 26	.....	Cutaneous Diseases.
18 — 3	.....	Ophthalmia.
367 — 62	.....	Ulcers and Abscesses.
365 — 62	.....	Venereal complaints.
244 — 41	.....	Wounds and Injuries.
24 — 4	.....	Corporal Punishment.
122 — 21	.....	All other Diseases.

More than two thirds, therefore of the admissions, that is 684 per 1000, were for Fevers and Bowel complaints together.

On the 1st April 1844, 157 cases remained in hospital ; during the year 5,887 were admitted, making the number treated 6,044 ; of these were discharged 5,644, died 241, and remained under treatment 31st March 1845, 148.

Towards the 241 fatal cases,

Fevers gave....	105	} which is equal to	436	} per 1000 of the whole mortality and	39	} per 1000 of the admissions for their own class of diseases.
Bowel compts..	120		498		91	
Pulmonic.....	8		33		26	
Cerebral.....	2		9		42	
Hepatic.....	1		4		36	
Dropsies.....	1		4		62	
Cutaneous diseases	1		4		$6\frac{1}{2}$	
Venereal.....	1		4		$2\frac{7}{10}$	
Scrofula	1		4		8	
Rheumatism....	1		4		6	

To admissions under Fevers were referred 2,038 cases of Intermittent, 473 of Remittent, and 212 of Continued. Of the

Intermittent	18 or $8\frac{4}{5}$	} per 1000 terminated fatally.
Remittent	79 — 167	
Continued	8 — 38	

Remittent fever assumed a very malignant form in Hong Kong, being rapid in its course, and often attended by delirium and coma : and in two fatal cases, designated as continued in the 18th regiment, and attended with coma on admission, effusion into the ventricles, and increased vascularity of the membranes of the brain, were found on dissection.

In many examples of Intermittent fever, the benefit derived from

quinine was temporary only ; the primary cause remaining, the disease returned once or twice a month, wearing out the strength of men attacked, who died from exhaustion, or from super-induced bowel complaints, complicated sometimes with disease of the spleen or mesenteric glands.

To diseases of the Lungs were referred 308 admissions, or 32 per 1000 of the whole ; and 8 deaths or 33 per 1000 of the fatal cases. This class comprises, under

Pneumonia.....	10	admissions.....	1 death.
Acute Catarrh . . .	280	.....	6
Acute Bronchitis . .	1	.....	0
Chronic Catarrh... .	11	.....	0
Phthisis Pulmonalis...	2	.....	1
Haemoptysis	2	.....	0
Asthma	2	.....	0
<hr/>		<hr/>	
Total	308		8
<hr/>		<hr/>	

Twenty-eight cases only of diseases of the Liver appear in the admissions, that is, $4\frac{7}{18}$ per 1000 of the whole, being 21 of acute, 5 of chronic Hepatitis, and 2 of Icterus ; but Assistant Surgeon Stewart of the 18th regiment remarks, in one of his Quarterly Reports, that extensive and varied appearances of disease of the liver were found in examining the bodies of several men, who had been returned under Diarrhæa ; and, in one of them, the immediate cause of death appeared to be the bursting into the abdomen of a hepatic abscess.

To diseases of the Stomach and Bowels were referred 1310, or 222 per 1000 of the whole admissions. This class gives to

Diarrhæa	989	admissions	81 deaths.
Acute Dysentery... .	111	.....	20
Chronic	31	.....	18
Peritonitis	1	.....	1
Obstipatio	99	.....	0
Colica	57	.....	0
Dyspepsia	19	.....	0
Cholera morbus... .	3	.....	0
<hr/>		<hr/>	
Total . .	1310		120
<hr/>		<hr/>	

Acute Dysentery, in the form it assumes in India, was comparatively rare. Chronic Diarrhæa, alternating with Dysenteric symptoms, prevailed in the autumn, and slowly but surely carried off many victims. Three of the fatal cases referred to Dysentery, occurred in men of the 98th Regiment, sent for change of air from Hong Kong to Chusan. In one of these Pneumonia, contracted during the passage, appeared to be the immediate cause of death ; but, in the large intestines of all three, extensive disorganization was found on inspection. In some cases ulcerated patches extended along the intestinal canal, with such enlargement of the mesenteric glands as might be supposed to have caused death by inanition : in others the ulceration was nearly continuous, from the cæcum to the anus, and in others were noticed abscesses of the liver, with distension of the gall bladder.

Under affections of the Brain and Spinal cord are brought together, 14 admissions for Cephalalgia, 1 Vertigo, 2 Paralysis, 9 Delirium tremens, 15 Inebriety, 4 Epilepsy, and 3 Amentia, 48 or 52 per 1000 in all. One case of Amentia, and 1 of Delirium tremens terminated fatally. The subject of the former, who was carried off by an attack of Diarrhæa, had been long suspected to be a malingerer, but latterly no doubt whatever remained of the existence of his disease.

Two cases of Anasarca, one of them fatal, 4 of Ascites, and 10 of Oedema, 16 in all, or 22 per 1000 of the admissions, are returned under Dropsies.

A hundred and sixty-one Rheumatic complaints, comprising 104 Acute and 45 Chronic cases, with 2 of Lumbago and 10 of Odonalgia, 23 per 1000 of the whole admissions, occurred. A chronic case, carried off by an attack of Diarrhæa, might have been more appropriately returned under Syphilitic cachexy ; the patient's constitution was broken down, his liver diseased, and the bones of his nose and palate gone.

Under Ophthalmic diseases appear 153, or 22 per 1000; and under Cutaneous diseases 18, or $2\frac{6}{16}$ per 1000 of the whole admissions.

The prevalence of Ophthalmia at Chusan, in the 18th regiment, is ascribed to exposure to currents of air during sleep, unwholesome water for ablution, and the inattention of Chinese barbers to cleanliness, in using only one towel for all they shave. The regiment had not previously suffered from the disease, which was sometimes insidious, sometimes abrupt in its onset, but always obstinate and intrac-

table, attended by intolerance of light, and flow of tears, granulated conjunctivæ and ulcers of the cornea.

The admissions for

Ulcers and Abscesses were	367 or 53	} per 1000 of the whole.
Venereal Diseases	365 — 53	
Wounds and Injuries	244 — 35	
Punishment	24 — $3\frac{4}{10}$	
All other Diseases	122 — 18	

In addition to that already referred to under Rheumatism, one fatal case is placed under secondary Syphilis, and another under Scrofula.

A young soldier of the 18th regiment, tossed and gored by a buffalo, had the bone of the ischium splintered, and a large lacerated wound inflicted on the right side of the perinæum.

During the year,

The average strength of the	{	Royl. Ordnance was	63	the admissions	209 or 331	}	per cent.
		98th Regiment	924	.....	3,650 — 395	
		<hr/>					
		Tot. in Hong Kong..	987	.....	3,859 — 388	
		18th Chusan.....	880	2,028 — 230		

The fatal cases were in the

Royl. Ordnance.	7 or 11-1	{ per cent of the strength and	{ $\left. \begin{array}{l} 3.3 \\ 5.1 \\ 4.8 \\ 2.4 \end{array} \right\}$ per cent of the admissions.
98th	186 — 20-1		
Tot. in H. K..	193 — 19-6		
18th Rt. Chusan	48 — 5-5		

Of

209	Admissions into the	{ Royl. Ord.. 104 i. e. 50 98th 1818 — 47 <hr/> Hong Kong 1922 — 49 18th Chusan 801 — 39 }	per cent were due to Fever.	{ 54 or 25 899 — 24.4 <hr/> 953 — 25 357 — 17 }	per cent to Bowel com- plaints.
3650					
3859					
2028					

In making this comparison we should bear in mind that of

3650 { admissions from the } 1,818 for Fevers and 899 for Bowel
 { 98th Rt. comprising. } complaints.

173 comprising 69 62

occurred at Chusan, in convalescents sent from Hong Kong for change of air, leaving for Hong Kong,

3477 admissions, 1749 for Fevers, 837 for Bowel complaints.

And that of

186 } deaths in the } 106 of them from Fevers and 83 from Bowel
98th Regt. } complaints.

12 comprising..... 0 from Fevers, . . . 12 from Bowel complaints, occurred in the same convalescents sent to Chusan, leaving for Hong Kong,

174 Deaths, 106 from Fevers, and 71 from Bowel complaints.

ABSTRACT of the Annual Sick Returns of the Royal Artillery, Sappers and Miners, 18th Royal Irish, and 98th Regiments, serving in China, from 1st April 1844 to 31st March 1845.

CORPS.		Royl. Arty. Sapr. Min.		18th Regt.		98th Regt.		TOTAL.	
Average strength.		63		830		924		1867	
Classes of Diseases.		Admd.	Died.	Admd.	Died.	Admd.	Died.	Admd.	Died.
Fevers.....	Intermittent.....	76	..	738	3	1224	51	2038	18
	Remittent	13	1	5	1	455	77	473	79
	Common Cont....	15	..	58	2	139	6	212	8
	Total	104	1	801	6	1818	98	2723	105
Diseases of Lungs....	Pneumonia	1	..	4	1	..	..	5	1
	Bronchitis Acut...	..	..	1	..	..	..	1	..
	Hæmoptysis ....	..	..	2	..	..	..	2	..
	Phthisis pulmon..	..	..	2	1	..	..	2	1
	Catarrhus Acut...	1	..	103	3	174	3	280	6
	„ Chron...	..	..	9	..	2	..	11	..
	Dyspnœa .....	..	..	..	..	..	..	..	..
Liver.	Asthma .....	..	..	..	..	2	..	2	..
	Total	2	..	123	5	183	3	308	8
	Hepatitis Acut...	2	..	14	1	5	..	21	1
	„ Chronic .....	..	..	2	..	3	..	5	..
Stomach and Bowels....	Icterus.....	..	..	..	..	2	..	2	..
	Total	2	..	16	1	10	..	28	1
	Peritonitis. ....	..	..	1	1	..	..	1	1
	Dysentery Acut..	15	3	4	..	92	17	111	20
Brain, &c....	„ Chronic	5	2	..	..	26	16	31	18
	Diarrhœa	23	..	307	31	654	50	989	81
	Obstipatio.....	5	..	18	..	76	..	99	..
	Colica .....	..	..	26	..	31	..	57	..
	Dyspepsia	1	..	1	..	17	..	19	..
	Cholera Morbus..	..	..	..	..	3	..	3	..
	Total	54	5	357	32	899	83	1310	120
Brain, &c....	Cephalalgia.....	3	..	..	..	11	..	14	..
	Vertigo	1	..	..	..	..	..	1	..
	Paralysis. ....	..	..	1	..	1	..	2	..
	Delirium tremens.	2	..	2	..	5	1	9	1
	Ebrietas.....	2	..	..	..	13	..	15	..
	Amentia.....	..	..	3	1	..	..	3	1
	Epilepsia. ....	..	..	2	..	2	..	4	..
	Total	8	..	8	1	32	1	48	2

Abstract Continued.

CORPS.		Royl. Arty. Sapr. Min.		18th Regt.		98th Regt.		TOTAL.	
Average strength.		63		330		924		1867	
Classes of Diseases.		Admd.	Died.	Admd.	Died.	Admd.	Died.	Admd.	Died.
Dropsies	Anasarca	1	1	1	..	..	..	2	1
	Ascites .....	..	..	3	..	1	..	4	..
	Œdema .....	..	..	8	..	2	..	10	..
	Total	1	1	12	..	3	..	16	1
Rheumatism.	Rheumatism Acut	2	..	55	..	47	..	104	..
	" Chronic	..	..	34	1	11	..	45	1
	Lumbago .....	..	..	1	..	1	..	2	..
	Odontalgia .....	..	..	1	..	9	..	10	..
Total		2	..	91	1	68	..	161	1
Morbi Oculorum.....		5	..	113	..	34	..	153	..
Morbi Cutis.....		1	..	5	1	12	..	18	1
Ulcers and Abscesses....	Phlegmon.....	7	..	44	..	143	..	194	..
	Fistula.....	..	..	..	..	1	..	1	..
	Ulcers	3	..	58	..	11	..	172	..
	Total	10	..	102	..	255	..	367	..
Wounds and Injuries. ..	Luxatio.....	..	..	2	..	..	..	2	..
	Subluxatio.	2	..	19	..	36	..	57	..
	Vulnus sclop.	1	..	..	..	1	..	2	..
	" incis. ....	..	..	18	..	7	..	25	..
	Contusio	7	..	49	..	91	..	147	..
	Ambustio .....	..	..	1	..	1	..	2	..
	Fracture .....	..	..	4	..	5	..	9	..
Total		10	..	93	..	142	..	244	..
Venereal.....	Syphilis prim.....	1	..	62	1	32	..	95	1
	" conse.....	..	..	1	..	2	..	3	..
	Ulcus Penis. ....	..	..	23	..	8	..	31	..
	Bubo simplex....	2	..	50	..	17	..	69	..
	Phymosis.....	..	..	..	..	1	..	1	..
	Paraphymosis....	..	..	1	..	..	..	1	..
	Gonorrhœa.....	2	..	106	..	32	..	140	..
	Hernia Hum.....	1	..	18	..	5	..	24	..
	Stricture urethra..	..	..	..	..	1	..	1	..
Total		6	..	261	1	98	..	365	1
Punitus.....		1	..	6	..	17	..	24	..
Other Diseases	Carditis.....	..	..	..	..	2	..	2	..
	Cynanchi Tons ..	..	..	9	..	14	..	23	..
	" Parot. ..	..	..	1	..	..	..	1	..
	Splenitis.....	..	..	9	..	10	..	19	..
	Otitis.....	..	..	2	..	4	..	6	..
	Hœmorrhœis....	1	..	11	..	16	..	28	..
	Vermes.....	..	..	..	..	1	..	1	..
	Scrofula.....	..	..	1	..	1	1	2	1
	Varix.....	..	..	2	..	..	..	2	..
	Furunculus.....	..	..	1	..	..	..	1	..
	Debilitas. ....	..	..	1	..	32	..	33	..
	Observatio .....	..	..	3	..	..	..	3	..
	Alii Morbi.....	1	..	..	..	..	..	1	..
Total		2	..	48	..	30	1	122	1
Grand Total.....		209	7	2,028	48	3,650	186	5,887	241

ARTICLE II.

Six Cases of Poisoning by Opium examined after death, with Observations. Also a case illustrative of the passage of Mud into the minute bronchi in the act of Drowning.
By H. J. CARTER, ESQ. Assistant Surgeon. Bombay Establishment.

Presented April 1848.

The following six cases of deaths from poisoning by opium, which came under my notice as Coroner's Surgeon in the island of Bombay, have been arranged in a tabular form, for the purpose of shewing at a glance, how constantly they were attended with remarkable pulmonary congestion. Three other cases from different sources have been added to them, but not more however for the purpose of shewing that they also were attended by similar post mortem appearances in the lungs, than for introducing the only other cases I have met with, in which the state of the lungs is mentioned.

PULMONARY CONGESTION.

A tabular view of Nine cases of Poisoning by Opium, shewing how constantly they were accompanied by marked pulmonary congestion.

No.	Sex.	Name and History.	Age	Examined after death.	Brain.	Lungs.	Stomach.
1*	Male.	Unknown. Supposed to have been a Mohomedan Fakeer. Was first noticed by some women just after he had expired. The post mortem for the inquest was made on the 22nd Sept. 1847. There were no marks of violence or traces of disease on any part of the body. A dark brown fluid was issuing from the mouth.	60 ?	Hours 36.	There was a clot of blood on the prominent portion of the right hemisphere, between the pia mater and the substance of the brain; it extended a short way down between the convolutions. The brain was tinged for a considerable distance round by the extravasated blood. There was no other lesion of the brain or any injury of the cranium or scalp.	The lungs were greatly distended and engorged with fluid; but in other respects were, with the heart, healthy and natural in appearance.	Stomach and intestines healthy and natural; the former contained half a pint of dark brown thick fluid, which had a strong odour of opium. The verdict was "died of apoplexy probably induced by some narcotic drug."
2	Male.	HYBUTTEE BALLOO, Stonemason—was found dead in his bed, after having gone to rest sensible. The post mortem for the inquest was made 31st July 1848. Is said to have been slightly addicted to drinking spirituous liquors. There were no marks of violence or traces of disease about the body, except those noted in the brain.	30	Hours 10	The arachnoid was opake and thickened on the upper part of the hemisphere. There was a spot of extravasated blood about an inch in diameter on the prominent part of the right hemisphere, between the pia mater and the convolutions; it extended in a fainter degree for some distance over the right side of the brain. There was more serosity in the ventricles than is natural. The layers of the arachnoid were adherent, throughout, over the cerebellum.	The lungs were greatly distended, engorged, and pinker than natural, but otherwise healthy.	Stomach and intestines natural and healthy, with the exception of the mucous membrane of the former which presented towards the cardiac end, three red, ecchymosed patches, each about one inch in diameter. There were about six ounces of dark brown thick fluid in the stomach which bore a strong odor of opium. Morphia was detected in the analysis.

* I do not lay much stress on this case, since circumstances rendered an analysis of the contents of the stomach impracticable.

3	Female.	50	Hours 10	<p>The vessels of the brain were congested, but the organ otherwise, was healthy.</p>	<p>The lungs were generally adherent on both sides, from an old affection, end, but without the presence of ecchymoses; otherwise, much congested and engorged with fluid and air.</p>	<p>The mucous membrane of the stomach was much congested towards the cardiac end, but without the presence of ecchymoses; otherwise, healthy and natural. There was a large quantity of fluid in the stomach of a brown color, with a sediment consisting of half dissolved pellets of opium. The presence of morphia was detected in its analysis.</p>
4	do.	18	do.	<p>The brain was much congested, but presented no extravasation or other appearances contrary to those which are commonly seen.</p>	<p>The lungs in this case were greatly distended so as completely to fill the cavity of the chest; and here and there a black they were otherwise healthy and natural.</p>	<p>Stomach and intestines healthy and natural. The former contained a large quantity of undigested food and here and there a black particle. On opening the duodenum, a number of partially dissolved pellets of opium were discovered. No opium was found beyond the duodenum. The mucous membrane of the stomach and intestines was healthy and natural in appearance.</p>
5	Male.	24	do.	<p>Arachnoid membrane on the upper part of the hemispheres completely disorganised, having become opaque, thickened and fibrous. No undue quantity of fluid in the ventricles, and the arachnoid in every other part, excepting between the hemispheres where it was partially adherent, smooth and transparent.</p>	<p>The lungs were so distended with fluid and air as to project beyond the confines of the chest, when the sternum and costal cartilages were raised, but end, it was of a deep blood-red color throughout, like a heart, were healthy piece of red velvet. Here</p>	<p>Stomach and intestines as far as the ileum congested. The mucous membrane of the former presented this to such a degree, that with the exception of being a little paler towards the pyloric end, it was of a deep blood-red color throughout, like a heart, were healthy piece of red velvet. Here</p>

DHOONDEE, Hindoo,—was found insensible about 9 P. M. and died about 1 A. M. The post mortem for the inquest was made on the 8th August 1848. There were several bruises on different parts of the body. The state of the lungs is mentioned. The foramen ovale was partially patent. There was a tumor in the course of the Fallopiian tube which contained fat and hair.

DEWKEE, Hindoo,—was found insensible between 8 and 10 P. M. and died about midnight. The post mortem for the inquest was made 10th August 1848. She was said to have been of temperate habits, there were no marks of violence or traces of disease present.

DAVIDASS LUKMIDASS, Pianoforte-tuner, was found in a state of semi-consciousness about 4 P. M. and died about half past 5 P. M. The post mortem for the inquest was made on the 5th October 1848. Is said to have been a confirmed drunkard, and had been intoxicated for some

Sex.	Name and History.	Age.	Examined after death.	Brain.	Lungs.	Stomach.
	hours before he took the opium. There were several bruises about the body but no traces of disease excepting those mentioned. The head and face and upper part of the trunk were congested and beginning to get discolored as in death from asphyxia.				and natural in appearance.	and there however it was mottled by the presence of diffuse spots, of a darker hue. In other respects it was natural. There was about a pint of brown colored fluid in the stomach which had a strong odor of opium. The deceased confessed that he had taken opium before he became insensible.
do.	JAMES COWARD, Sectioner in the Secretariat, was found in a semi-conscious state about 7 P. M. and died about 8 P. M. The post mortem for the inquest was made Nov. 1st 1843. It is said to have been addicted to intoxication. About six months before, he took four ounces of laudanum, and being called to him early, I in conjunction with Dr. Peet saved his life by the use of the stomach pump. After that he took opium six times for the purpose of self-destruction and was saved each time in a similar way. There were no marks of violence or traces of disease throughout the body, with the exception of the state of the arachnoid which is mentioned in a succeeding column.	20	Hours 14	The arachnoid membrane was opaque and much thickened on the upper surface of the hemispheres and also about the base of the brain, but in other parts smooth and transparent. The hemispheres were slightly adherent. There was general congestion of the vessels of the brain, and one or two slight extravasations on the surface of the hemispheres. More serum in the ventricles than is natural.	Lungs distended with air and fluid, but not so much as to completely fill the chest; anterior portions of a slight rose-color, cretaceous and partly collapsed, the rest gorged with air and blood, and the surface of the most prominent portion, spotted with black ecchymoses, about an eighth of an inch in depth. Trachea and bronchi partially filled with a frothy mucous fluid, deeply tinged with blood; their mucous membrane also much congested.	Mucous membrane of stomach generally congested, and of a blood-red color about the cardiac extremity, becoming paler and punctiform towards the pylorus. Mucous membrane at the commencement of the duodenum presented punctiform congestion, which soon disappeared and was lost entirely on approaching the jejunum. There was about half a pint of fluid in the stomach which exhaled the odour of opium. The presence of morphia was detected in the analysis of this fluid.

7+	KNAPPE'S Case	Infant	Vessels and sinuses of the brain gorged with fluid blood, also much serosity in the ventricles and about the base of the brain.	The lungs were so distended and gorged with fluid blood, that it ran out in a stream when they were cut.	Some redness in the vilous coat of the stomach and intestines.
8†	Male. Dr. CLARKE'S Case.	young man.	The brain was natural.	The trachea and air-vessels of the lungs were completely filled with frothy blood and some blood issued from the mouth.	The stomach was natural.
9+	do. Dr. KELSO'S Case.	23	Hours 30 Vessels and sinuses of the brain considerably engorged.	In the right cavity of the chest were several old adhesions and a pint of bloody serum; the inferior part of the lung was in the "state called hepatisation;" the middle and lower surface of the inferior lobes in a state of extreme engorgement; the upper quite healthy. Left lung nearly adherent all round but considerably engorged.	In the stomach was observed a patch the size of the palm of the hand (between the great curvature and the pyloric end,) denuded of its membrane, its margin was rather elevated and abrupt and for some extent round it, was of a pale red color caused by a multiplicity of ramifying vessels charged with blood. Intestines generally injected. Morphia was found in the chemical analysis, and unequivocally meconic acid.

* Beck, Elm. Jurisprud. Ed. vi. p. 672, foot-note.

† Ap. Christison Treat. on Poison. E. 1. p. 540.

‡ Lancet. Vol. ii 1838-39 p. 924.

Observations. In the section devoted to "Morbid appearances caused by Opium," in Dr. Christison's "Treatise on Poisons," which contains more on this subject than any book of the kind to which I have present access, and alludes to all the cases cited by the principal English writers on Medical Jurisprudence,—little stress is laid on pulmonary congestion. Dr. Christison states that, "The lungs are sometimes found gorged with blood, as in many cases of apoplexy. They were so in the soldier mentioned in the *Journal Universal*, who died in convulsions. They were in the same state in a patient of my colleague Dr. Horne, a man who died in the clinical ward here in 1845, four hours after taking two ounces of laudanum in six ounces of whiskey, and likewise in the case quoted by Pyl, in which 60 grains had been taken. But this appearance is not more constant than congestion of the brain. Orfila never found it in dogs, and in three cases I have examined the lungs, were perfectly natural."

It may be true as Dr. Christison states that congestion of the lungs "is not more constant than congestion of the brain," because the probability is, that both these organs as well as many others are always more or less congested; but the question here is, not the organ in which congestion is most constant, but that in which it is most remarkable after poisoning by opium.

From my own experience,—from the cases I have cited, which, as I have said before, are the only ones I have met with, in which the state of the lungs is mentioned,—from what Dr. Christison himself has stated in the first part of the paragraph quoted,—and from the results of Orfila's experiments, which are given hereafter (although Dr. Christison has it that "Orfila never found it" congestion of the lungs "in dogs,") I feel inclined to lay more stress on congestion of the lungs as a post mortem appearance after poisoning by opium, than on any other sign hitherto described.

The following are the results of Orfila's experiments on dogs, which were poisoned by opium,—so far as the lungs are concerned.

Exp. 1.—"The lungs exhibited several patches distended with blood, very little crepitating."

Exp. 2.—"The lungs presented livid spots, the texture of which was livid and distended with blood."

Exp. 3.—"The lungs, which were of a rose color, were rather less crepitating than in the natural state."

Exp. 4.—"The lungs were livid, distended with blood, dense, and somewhat crepitating."

Exp. 5.—No mention made of the lungs.

Exp. 6.—“The inferior lobe of the lungs was distended with blood and reddish.”

Exp. 7.—The state of the lungs is not mentioned.

Exp. 8.—“The lungs which for the most part were rose-color, presented in each lobe, eight or nine black spots of the size at least of lentil, and of half a line in thickness, formed by a dense substance similar to the texture of liver, and not at all crepitant. The remaining portion of the lungs contained air. There was found in the inferior lobe of the left lung a patch about two inches in length and half an inch in breadth, of a livid color, and from which on being cut into, issued a tolerable quantity of serosity.”

Exp. 9.—“The lungs were nearly in the same state as in the preceding experiment.”*

Of all the published cases then of poisoning by opium in the human subject I have met with, in which the state of the lungs is mentioned,—of those cited by Dr. Christison,—and of those which have come under my own notice,—the only ones in which the lungs were “perfectly natural,” are the three which were examined by Dr. Christison. While in seven, out of the nine experiments performed by Orfila on dogs, there was distention, congestion, or increased vascularity or livid spots, in those organs.

Alimentary canal.—It is also worthy of remark, that in the three cases in which the mucous membrane of the stomach presented intense circumscribed, or general redness from congestion, accompanied by slight punctiform extravasation, the deceased had been addicted to habits of intoxication, from the use of spirituous liquors. Lukmidass Davidass, in whose stomach the redness was most general and most remarkable, was under the influence of spirits when he took the opium, and was said to have been drunk every day for the last five years. James Coward was also under the influence of liquor when he took the opium which killed him, and was moreover addicted to intoxication; so was Hybattee Baloo, the Hindoo Stonemason, in whose stomach the red patches were least remarkable. While in the two women who were said to have been of temperate habits, there was in the stomach of one no appearance whatever of congestion; and in that of the other but little, comparatively speaking.—Nothing is known of the previous history of the Mahomedan.

Assuming then, that which is very probable, viz. that in a great

* Orfila Treat. on Poisons, English Trans., London, 1847, Vol. II.

number of cases in which death has been caused by opium, the suicides have taken it under the melancholy and semi-consciousness of intoxication, it becomes questionable, whether in such instances, the congestion of the stomach has not been due more to the effect of the intoxicating liquor, than to the irritation caused by the presence of the opium.

In poisoning by alcohol it is allowed,* that the mucous membrane of the stomach commonly presents more or less general, more or less intense redness, but not always †; while Orfila maintains, that when opium or any of the other narcotic poisons are applied to the cellular texture or to the cuticle, they only produce a slight irritation, similar to what any other extraneous body would do ‡—certainly there is no mention made of any congestion in the alimentary canal in the dogs which were poisoned by opium.

These facts connected with the difficulty of explaining, why this extreme local congestion of the alimentary canal should be confined to the stomach and duodenum, in preference to any other part, upon the inference that it is produced by the obstruction offered in the lungs to the passage of the blood through the venous system generally, would seem to incline one to the opinion, that in cases of poisoning by opium where such congestion of the mucous membrane has been present, it has been produced by the use of spirituous liquors, and not by the presence of the opium.

Orfila, in speaking of the lesions of texture produced by narcotic poisons, among which is classed opium, states, that “no alteration can be discovered on dissection in the digestive canal of persons who have swallowed one of the poisonous substances of this class, and if facts contrary to this assertion do occur, it is because there have been administered substances capable of producing inflammation.”§

If Orfila be correct that opium has no direct effect, the congestion of the mucous membrane of the stomach cannot be owing to its presence, and the question then rests between its being produced by the obstruction offered in the lungs, to the passage of the blood through the venous system generally, or owing to the direct effect of the alcoholic stimulant applied to the part, assuming that this has been the stimulant.

* Encyclograph. Des. Sci. Med. Art. Alcohol. Trousseau.

† Christison Treat. on Poisons, Ed. 1. p. 680.

‡ Orfila Treat. on Poison. Eng. Translat. Vol. II. p. 171.

§ Idem.

As I have before stated,—I think the absence of a satisfactory reason to account for this occasional local congestion of the stomach and duodenum in preference to any other part of the alimentary canal, favors the opinion, that it is not the direct or indirect effect of the opium, but the direct effect of the alcoholic stimulant previously or simultaneously taken with that poison.

Blood.—No mention has been made of the state of the blood in the cases I have given, which however might be said to have been generally fluid; but in this country, its fluidity from decomposition so soon follows death, that this and its consequent rapid transudation through the tissues, should, as a vital effect, be regarded with much suspicion even twelve hours after life has become extinct.

Passage of Mud into the Lungs in the act of Drowning.

The following case illustrates the passage of mud into the extremities of the bronchial tubes, during the act of drowning.

Hurree Balloo, a Hindoo cowherd boy, aged 13 years, was found dead in the great open drain of Bombay, where it passes through the marshes to reach the sea on the outer side of the island. The inquest was held on the 10th September 1848. On the day previous, about 2 p. m. the deceased had for the last time been seen, in company with a Purdasee, who promised to place him in charge of some cows, and nothing after was heard of him, until a Policeman about one o'clock the following morning, discovered him dead, with his face downwards, in the drain mentioned. He had some gold and silver ornaments about his person when he was seen with the Purdasee, and it is supposed that the latter, to get possession of them without detection, had robbed and drowned him. The water and mud in the drain was about three feet deep,—about two of the former to one of the latter.

The post mortem examination took place about 16 hours after death.

There were no marks of violence or traces of disease throughout the body. The head and face and upper part of the trunk were swollen, congested and discolored, as in people who have died from asphyxia. A bloody fluid mixed with black mud was issuing from the mouth and nostrils. The hands and nails were covered with mud; the lungs were distended, and the diaphragm depressed; the blood fluid, and the right side of the heart gorged with it. On opening the trachea from the larynx downwards, mud was observed in it, similar

to that which flowed from the mouth and nostrils, and similar to that in the drain ; it was in large quantity, and extended into the minute branches of the bronchi, so as slightly to impart its color to the substance of the lungs. There was a little of the same kind of black mud in the œsophagus, but none had reached the stomach. All the other internal organs were healthy and natural in appearance.

Observations. Although Marc, Orfila,* and others have from their united experience established the fact, that froth and water may be found in the trachea of the greater part of those who are drowned in that fluid, yet Orfila states, that the presence of sand or gravel is so uncommon, that out of fifty dissections he only saw it once.† While Devergie ‡ observes “ that mud only exists in the trachea ” after very prolonged submersion.

It is obvious, from the above case, that the latter author should not have restricted the passage of mud into the trachea to that period, when, from the decomposition of the body, (which I presume is meant by “ very prolonged submersion ”) it becomes an accidental occurrence ; but rather to have allowed that under certain circumstances its presence both in the trachea and the lungs may be occasioned also by a vital act. This is proved to have been the case in the present instance, and not to have been from prolonged submersion,—from the force with which the mud must have been sucked up to have reached the extremities of the bronchial tubes, and from the short interval which must have elapsed between the drowning of the boy and the time when he was discovered dead, and dragged out of the drain by the Policeman.

Several experiments on animals have established the possibility of the passage of thick fluids, such as oil, mercury, &c. into the lungs, during the act of drowning,§ but I have not hitherto met with more than this case in which the fact has been so satisfactorily demonstrated in the human subject.

* Encyclograph des. Scien. Med. Art. Asphyxie. Devergie.

† ‡ § Idem.

ARTICLE III.

Annual Report of the European General Hospital at Bombay for 1847. By M. Stovell, Esq., Surgeon.

Presented by the Medical Board November, 1848.

At the close of 1846 there remained 72 Patients in Hospital. During the past year 1061 were admitted, making a total of 1133 who have been under treatment. Of these, 998 have been discharged, 71 remained under treatment on the 31st of December, and 64 died, being a per centage of 5.648 on the whole number.

2. I will now sketch a brief outline of the medical history of the Hospital during the past year, and add such remarks on the most prevalent diseases, their peculiarities and treatment, as may seem necessary.

3. At the close of the past year, as stated in my last Report, there were more cases of Dysentery and Hepatitis than usual at that period of the year; there was less Fever than in any month since the preceding April; and there were a few cases of Bronchitis and Phthisis Pulmonalis.

4. During the earlier months of the year, the cases of Dysentery and Hepatitis continued numerous and severe; Diarrhœa became more prevalent, and there was an unusual amount of Pulmonary disease, particularly of Bronchitis and Phthisis Pulmonalis. The admissions with this latter disease, indeed, were singularly numerous throughout the whole year, as compared with former periods. The cases generally occurred in sailors recently arrived in the country. The hot season was unusually healthy, and was happily marked by the total absence of cholera, a disease which almost invariably prevails at that period to a greater or less extent. The most remarkable feature, indeed, in the medical history of the Hospital during the past year, was, perhaps, the fact of only one case of this disease having been admitted. It was a solitary case, occurring in August, admitted in the

stage of collapse, and proved fatal. During the monsoon months, there was a good deal of Dysentery and Remittent Fever; the latter prevailed more particularly in August, and in the early part of September. During October, Intermittent Fever was very prevalent, and continued so till the approach of the cold season in November. In December, cases of important disease were both less severe and less numerous than for several preceding months. Throughout the whole year, there was a large number of admissions with scurvy, chiefly from Liverpool and Glasgow ships.

5. It will be seen by a reference to the accompanying Annual Return, that of the most important Indian diseases, viz. Fever, Dysentery, Hepatitis, and Cholera, the first, as usual, was the most prevalent, the number of cases treated having been 186, or 16.416 per cent on the whole number of admissions. The next most prevalent disease was Dysentery, the number under treatment having been 76, or 6.707 per cent on the whole. The cases of Hepatitis were 43 in number or 3.795 per cent, and of Cholera, as I said before, only one case was admitted.

6. There were no less than 81 admissions, the immediate result of drinking; 24 of these cases being admitted in a state of Delirium Tremens, and 57 of Ebrietas. Thus the percentage of admissions from drunkenness alone, was as high as 7.149.

7. The casualties were 64 in number, viz. 9 of Fever, 11 of Dysentery, 6 of Hepatitis, 1 of Cholera, 11 of Phthisis Pulmonalis, 3 of Bronchitis, 5 of Ebrietas, 4 of Delirium Tremens (one case occurring in a man who attempted to commit suicide, marked "Vulnus" in the Return), 2 of Diarrhœa, 2 of Enteritis, 2 of Ascites, 1 of Anasarca, 1 of Nephritis, 1 of Scurvy, 1 of Paralysis, 1 of Fracture of the skull, 1 of Fracture of the spine, 1 of Laceration of the urethra, and 1 of Acute Rheumatism.

8. **FEVER.** 186 cases of Fever have been under treatment. In 16 of these there was no distinct remission. In 55 there were remissions more or less distinct; and in the remaining 115 there were perfect intermissions.

9. *Continued and Remittent Fever.*—The greatest number of admissions was in July and August; and most of the cases were complicated more or less with cerebral or gastro-enteritic irritation. The most severe cases occurred in sailors, and the immediate exciting cause could frequently be traced to undue exposure to, or excessive exertion in, the Sun. 8 fatal cases occurred, being a percentage of

11,267 on the cases treated. Three or four of these were admitted in a very advanced stage, and when there was but feeble hope of recovery. On two occasions, men were admitted who had been previously under treatment on boardship for several days. In both of the cases thus admitted, the systems of the patients had been affected by mercury previous to admission, and without the slightest benefit; on the contrary, its constitutional operation seemed to have been productive of mischief. The febrile action assumed a typhoid character, and both cases proved fatal.

10. Our knowledge of the pathology of Fever, is unhappily very limited, but as far as symptoms during life, and morbid appearances on examination after death, enable an opinion to be formed, the brain was the most frequent seat of local inflammatory action in the more severe cases treated during the year. An inspection was made in 8 out of the 9 fatal cases of Fever; and in all but one, there was found more or less vascularity, either of the brain or of its membranes, and serous effusion on the surface, into the ventricles, or at the base of the former organ. I mention the subject but briefly here, as I purpose towards the conclusion of my Report, to give an abstract statement of the morbid appearances found in each fatal case, which was examined after death. It is worthy of remark, however, in this place, that there is evidently no necessary connection between cerebral symptoms and serous effusion, for in one case in which from 2 to 3 ounces of serum were found on the surface and at the base of the brain, the cerebral functions had been perfectly unclouded.

11. In the milder and the more tractable cases of Remittent Fever, when there was no evidence of congestive or inflammatory action, the treatment has been very simple. I have almost entirely trusted to antimony. This medicine generally acts on the bowels, and sooner or later produces a remission, sufficiently distinct to justify the exhibition of quinine. When the antimony fails in exciting secretions from the intestinal canal, a dose or two of calomel has been necessary, combined with, or followed by, a purgative. Convalescence in such cases, and with this treatment, has usually been rapid and satisfactory.

12. In the more severe cases of Fever, in which there has been, either no distinct remission, or the remission has been short and ill defined, evident local inflammatory action being at the same time present, the treatment has of necessity been more active. In these cases, local depletion by leeches has generally been resorted to, with the exhibition of calomel in larger or smaller doses, according to the res-

pective indications of each individual case, and generally in combination with antimony, unless contra-indicated by the existence of irritability of stomach arising from gastro-enteritic complication. In many cases it has been necessary, for the same reason, to give active purgatives with much caution. In cases of cerebral complication, ice to the head has sometimes been employed with marked benefit, and blisters, when preceded by local depletion. In some cases, a remission has been followed by partial collapse, lasting for several hours, and rendering the use of ammonia and other stimulants necessary; and in several cases in which typhoid symptoms supervened, it became requisite to have recourse to ammonia and other diffusible stimulants.

13. In several cases accompanied by great restlessness and watchfulness, not depending on vascular excitement, I have given a full dose of morphia with marked benefit, the sleep thus procured greatly lessening that nervous febrile excitement, which is sometimes the cause, and sometimes the effect, of total inability to sleep.

In all cases of Remittent Fever, I have carefully watched for the first moment in which quinine could be given with any probability of advantage, always keeping in view, that the most important indication is to take measures to prevent the recurrence of a febrile accession. On the very first remission, therefore, I have usually administered quinine; and generally in combination with the hydrargyrum cum creta, whenever a foul, loaded tongue, indicated the existence of irritation in the lining membrane of the stomach and bowels, more particularly if the intestinal secretions were unhealthy.

15. *Intermittent Fever.* 115 cases have been under treatment. The admissions were most numerous in June and October. There has been one casualty. The case occurred in an old worn out pensioner, and was complicated with Pulmonary disease. There was no peculiarity, either in the symptoms, or character of this type of Fever as it generally presented itself, and except in a few cases, it was uncomplicated. In these few instances the spleen was the viscus most frequently diseased, and lengthened treatment became necessary. The quotidian was a more frequent type than the tertian, and the stages of each paroxysm were generally well marked. In some few cases, however, there was an almost total absence of the cold stage. The intermissions were generally distinct and well marked, except in a few cases complicated with visceral disease, or occurring in patients broken down by intemperate habits, in which the intermissions were not

always well defined, the disease shewing a tendency to pass into the Remittent type. With regard to the treatment of Intermittent Fever, I need merely say, that the great object kept in view was to prevent the recurrence of paroxysms, by giving repeated doses of quinine for some hours previous to the time, at which the paroxysm was expected. This generally prevented visceral congestion, but in cases complicated with local disease, each case was treated according to the nature of the complication, and the consequent indication.

16. *Dysentery*. 76 cases have been under treatment, the admissions being most numerous in January and February. The casualties have been 11, or 14.473 per cent on the cases of this disease under treatment: one half of these casualties occurred during the first three months of the year, and 3 of them were cases remaining under treatment at the close of 1846. The great majority of the cases were in the acute form, and they occurred chiefly among the Warrant Officers of the Military and Naval Departments, pensioned soldiers, and men in the Ordnance Department.

17. Post mortem examinations were made in 10 of the fatal cases. In every instance there was ulceration, more or less extensive, in the mucous lining of some portion of the colon, and in 2 cases the ulcerative process had extended through all the coats of the colon into the peritoneal cavity. In one of these cases, a portion of the contents of the intestine had escaped into this cavity, thus accounting for the severe abdominal pain which occurred about eight and forty hours previous to death. In the other case, though the ulcerated opening was two inches in length, the contents of the colon had not escaped. In several cases, portions of the lining membrane of the colon were almost gangrenous. In 3 cases out of the 10, the liver was perfectly normal both in structure and size. In 3, it was more or less enlarged, but healthy in structure. In one, it was greatly enlarged, and disorganized throughout, and so soft that it broke down under the slightest touch. In each of the 3 remaining cases, abscesses were found in the liver.

18. It will thus be seen that in the majority of the fatal cases, there was hepatic complication, and I believe it must be admitted, that in such cases it is frequently most difficult to say which may have been the original disease. All experience proves, that there is frequently the most intimate connection between Dysentery and Hepatic abscess, and such being the case, although due weight be given to all attendant circumstances in forming a diagnosis, I am inclined to be-

lieve that it may sometimes be incorrect, and that though the affection of the bowels may be the most prominent feature in the case, yet it is more than possible, that the affection of the liver, frequently insidious and obscure in its development, may have been the original disease.

19. There was no feature in the disease more variable, than the character of the evacuations in different cases, and even in the same cases at different times. In the most severe forms of Dysentery, the stools were usually serous, but varying in color, sometimes almost black, and at other times greenish or brownish, and more or less mixed with blood. In the very worst cases, they were generally like the rincings of beef. In one fatal case, however, there was neither blood, slime, nor serum after the first few days; the secretions then became feculent, generally fluid, but sometimes even consistent. This state continued a month, the tongue being always more or less thickly coated with a dirty yellow fur, sometimes dry, sometimes moist, with a pulse always above a hundred, and latterly as high as 120 and 130. There was no local uneasiness at any time, but latterly there were slight febrile accessions, and I became suspicious of hepatic abscess, yet on examination after death, it proved to be one of the few cases in which the liver was found perfectly normal, but the ulceration in the colon had extended through all its coats into the peritoneal cavity.

20. The subject of treatment opens a wider field for remark than can satisfactorily be entered upon within the narrow limits of a Report; for there are but few diseases, I believe, which require more important modifications in the treatment, to adapt it to the particular character and stage of each individual case; and there can be no doubt, that treatment, which in one case or one stage, might be beneficial, would in other cases or stages, be productive of mischief. Without entering, therefore, into all the important considerations connected with an extended view of the subject, I must limit my remarks to a brief statement of the ordinary plan of treatment which I have adopted in ordinary cases. During the first stage of inflammatory action, I have usually had recourse to local bleeding, more particularly if the disease were of recent origin; the extent and repetition of this depletion being made to depend on the particular indications of each individual case, always bearing in mind, that the most efficient way of preventing ulceration is to subdue the preceding stage of inflammatory action as rapidly as possible. Cases were sometimes admitted, however, in which there could be no reasonable doubt of ulceration having already commenced, and in which local depletion

would have been injurious. Calomel, in small quantities has usually been given, in all recent cases, with the general view of correcting secretions, but never with the object of producing its constitutional effects. The continuance of its exhibition, has been made dependent on the appearance of the tongue, the character and frequency of the stools, and the absence or presence of abdominal tenderness. On all occasions it has been combined with opium. I have generally omitted its use the moment the biliary secretion has assumed a healthy character. In nearly every case, and in every stage, I have administered ipecacuan in combination with opium, and I have found it exert a most beneficial influence in the majority of cases. An occasional dose of castor oil has been given, according to the respective indications of each individual case. An opiate enema, frequently repeated, has in most cases, greatly relieved some of the more distressing symptoms, particularly the harassing feeling of tenesmus.

21. The remarks just made apply particularly to the more recent and acute cases. In chronic cases, occurring most frequently in long residents in India, whose constitutions had been more or less broken down, and where the disease might fairly be supposed to be dependent on ulceration in the colon, but little could be done, unless the general tone of the constitutional powers was capable of being improved. Where change of climate could not be obtained, recourse has been had to tonics and astringents, combined with opium. Nitric acid occasionally did much good; but upon the whole the sulphate of copper, combined with opium, and administered, when practicable, at regular intervals by night as well as by day, appeared to exert the most beneficial effect, and this effect was usually found to be greatest when the copper was pushed to the extent of producing slight nausea. The most rigid attention to diet was in such cases of paramount importance. I have sometimes confined patients to milk diet for weeks, and then allowed nothing more, except beef tea. The case of Conductor Norris, accompanying this report, is an illustration of the good effects of this method of treatment.

22. *Hepatitis.* 43 cases have been under treatment, the admissions being most numerous in January and March. There have been 6 casualties, or 13.953 per cent on the cases treated. An inspection was made in each fatal case. In 2 cases, the liver contained abscesses. In a third case, complicated with pulmonary disease, the liver was almost normal. In each of the 2 remaining cases, the liver was greatly enlarged, extending far into the left hypochondriac region,

and downwards into the umbilical, displacing the stomach and intestines. The liver in one of these cases weighed seven pounds and a half; in the other it weighed eight pounds and a half. One of these two last cases occurred in a woman, 26 years of age, who had not been many years in the country. The other also occurred in a woman, but she had been 24 years in India; yet notwithstanding the enormous enlargement of the liver, neither of these women suffered much inconvenience till within a short time of death, except from a little Diarrhœa now and then. Whilst alluding to enlargement of the liver, I may perhaps appropriately mention in this place, that the largest which was met with during the year, was found in a man who died from delirium tremens; it weighed no less than ten pounds and six ounces.

23. With regard to treatment, so much depends upon the particular character and stage of each case, as well as upon the constitutional power of each patient, that it is difficult in a short space to enter upon the subject in all its bearings. I must therefore content myself by saying, that modified so as to meet the particular indications of individual cases, the treatment on ordinary occasions,—more specially when the attack was recent and attended by well marked symptoms—consisted in the earlier stages, in the employment of local depletion, mercury, purgatives, antimony, counter irritation, &c; in the latter stages, particularly when there was reason to suspect the formation of abscess, but little could be done beyond supporting the strength, and meeting symptoms as they arose, by appropriate treatment.

24. Accompanying the Report are two very interesting cases under the head of Hepatitis. In one case, an abscess in the liver discharged its contents into the bronchi. In the other case, an abscess pointed externally and was opened. In this case, the purulent discharge continued from the end of May till the end of July. I have seen both men several times since, and their recovery has remained perfect.

25. *Delirium Tremens*. 25 cases have been under treatment, the admissions being most numerous in June and December. There have been 4 casualties, or 16 per cent on the cases treated. A post-mortem examination was made in every fatal case, in each of which there was serous effusion, either on the surface of the brain or at its base. In 2 cases, the vessels of the brain were much congested. In one case, there was a considerable quantity of blood effused between the skull and dura mater. In 3 cases, the liver was much enlarged,

and in one of these to such an extent that it weighed ten pounds and six ounces. The disease was usually treated on the principles, and in the manner so ably and fully described by Dr. Morehead.*

26. *Ebrietas*. 57 cases have been under treatment, the admissions being most numerous in May and December. The casualties were 5 in number, being 8,771 per cent on the cases treated. Post mortem examinations were made in 4 of these cases. In 3 there was serous effusion either on the surface of the brain or at the base, as well as into the ventricles; and in 2 cases the liver was greatly enlarged, to such an extent, indeed, in one of these cases that it weighed eight pounds and a quarter.

27. The important subject of morbid anatomy has been constantly kept in view, and every practicable opportunity has been taken of examining the organic changes produced by disease. Post mortem examinations have been made in 55 out of the 61 fatal medical cases; and I will conclude this part of my Report by giving a short summary of the appearances found on dissection in each of these cases, with a brief introductory statement of the more prominent symptoms of each case respectively.

CASE 1. REMITTENT FEVER.—George Wallace, 23 years of age, Seaman in the Indian Navy, was admitted into Hospital on the 15th August, having been under treatment on boardship for 3 days with Remittent Fever. The heat of skin was intense, particularly about the scalp. There was partial stupor. He required to be roused before replies could be got to questions, and when he spoke, he did so indistinctly, and with difficulty. Tongue thickly coated; pulse 135, irregular, and without irritability; bowels open. Six dozen leeches were applied to the head, followed by the application of cold, and a blister; and by the administration of calomel and antimony. During the night he became delirious, and early the next morning was somewhat violent. Leeches and ice were again applied. At 8 A. M. he suddenly became quiet, and the heat of surface diminished; but this apparent improvement was quickly followed, by coldness of the extremities, coma, and death at $\frac{1}{2}$ past 8 A. M.

Inspection 8 hours after death.

Head.—There was serous effusion to a great extent between the arachnoid and pia mater, and the anterior branch of the middle meningeal artery of the right side was found ruptured, with the escape of about 2 ounces of blood.

Abdomen.—The liver was natural in structure, but somewhat above the average size. Spleen large, weighing 5 pounds and a half. Other viscera healthy.

CASE 2. REMITTENT FEVER.—John Sullivan, 43 years of age, Seaman in

* Vide Transactions of Medical and Physical Society of Bombay, No. VI, p. 139.

the Barque Lady Lilford, recently arrived from England, was admitted into Hospital on August 19th, having been some days under treatment on board for Remittent Fever. On admission, his skin was cool; he had no pains, and his pulse was 72, soft, and small. He was perfectly sensible, but his weakness was excessive. He took ammonia with wine and beef tea, but his debility increased, his breathing became labored and oppressed, and he died the day after his admission.

Inspection, 13 hours after death.

Head.—Serous effusion to a great extent between the arachnoid and pia-mater. There was also turgidity of the vessels of the dura mater. The brain itself, was free from bloody points, or any other appearance denoting the existence of inflammatory action during life.

CASE 3. REMITTENT FEVER.—Henry Edwards, 30 years of age, Seaman of the Indian Navy, was admitted on August 23rd, having been under treatment on board ship since the 16th of that month for Remittent Fever. Previous to admission he had been bled, leeches, cupped, and blistered; and had taken calomel, antimony, &c. When admitted he had a weak fluttering pulse of 130, irregular in its beat, but without the slightest irritability. His mouth was sore from mercury. Skin cool and moist. He was restless and constantly sighing. His bowels were irritable. He took ammonia, digitalis, and beef tea, and had opiate enemata. For a time he seemed to improve; his pulse fell to 94, and slightly increased in volume, and his bowels became less irritable; Quinine was now added to the ammonia. He had no accession of Fever till the evening of the 25th; it then assumed the typhoid character; sordes appeared on the lips and teeth, insensibility supervened, and he died on the 26th of the same month.

Inspection, 14 hours after death.

Head.—The brain and its membranes were perfectly healthy. The only abnormal appearance, was very slight serous effusion into the left ventricle.

Abdomen, not examined, there being no abdominal symptoms during life.

CASE 4. REMITTENT FEVER.—Edward McNaught, 23 years of age, Seaman in the Ship Culdee, just arrived from England, was admitted on the 9th of September, having been ill four days with Remittent Fever. There was no evidence of much visceral complication, and the remissions were well marked daily till the 12th, but on that day there was not the slightest remission; the whole surface of the body became hotter and drier, the tongue more furred as well as drier, with great anxiety and hurried breathing; pulse 140 and small. He took calomel, antimony, digitalis, and morphia, but the distress in breathing increased, he rapidly became worse, and died on the 13th, the cerebral functions remaining unclouded to the last.

Inspection, 13 hours after death.

Head.—Serous effusion to great extent between the arachnoid and pia-mater, producing a visible separation between the two membranes over the whole surface of the brain.

Thorax.—Lungs slightly congested.

Abdomen.—Viscera healthy.

CASE 5. REMITTENT FEVER.—Joseph Cross, 18 years of age, an apprentice in the Ship Robert Anderson, just arrived from Liverpool, was admitted on the 20th of November, having been ill a week with Fever. On admission the skin was hot and dry; but there was no local uneasiness beyond slight headache; his bowels were open. He was treated with antimony. Early next morning a remission took place, followed by partial collapse; his skin became cold and clammy, and his pulse almost imperceptible. It was necessary to give wine and repeated doses of ammonia. Reaction did not take place till the following day, the 22nd. The whole body then became hot and dry, and the tongue dry and brown, but with florid edges. There was an expression of great anxiety in the countenance, and he frequently groaned heavily, but there was no local pain. His body was sponged frequently with tepid water, his bowels moved with castor oil, and he was put on antimony combined with calomel and small doses of morphia. He continued much in the same state, with occasional remissions, but very slight and partial, his cerebral functions remaining unclouded. At 3 P. M. on the 29th he suddenly became insensible, and his breathing soon after stertorous, with pallid face and hot surface till midnight, when the surface became cooler, and he died about noon the next day the 30th.

Inspection.

Head.—The vessels of the brain were not more congested than usual, and the membranes were natural in appearance. There was a small quantity of serum in the right lateral ventricles, and about 2 ounces at the base of the brain.

Thorax.—Viscera healthy.

Abdomen.—Viscera also healthy.

CASE 6. CONTINUED FEVER.—John Cox, 15 years of age, apprentice in the Ship Nimrod, lately arrived from England, was admitted on the 10th of February with Fever. The whole body was hot and dry, and he had intense headache; pulse 120, soft. Leeches were applied to the head with much relief, and he was put on calomel and antimony. Not the slightest remission took place, and on the 12th the pupils became dilated and sluggish, and the tongue dry and brown. Typhoid symptoms then supervened, with insensibility, and sordes about the mouth. Ammonia and camphor, with blisters, were added to the former treatment, but without benefit, and he died on the 19th.

Inspection 14 hours after death.

Head.—The membranes and substance of the brain were much injected, and there were numerous bloody points on cutting the latter. There was serous effusion to great extent in the ventricles, as well as at the base of the brain.

CASE 7. CONTINUED FEVER.—Robert Jacobson, 16 years of age, appren-

tice in the Ship *Adrastas*, lately arrived from England, was admitted on the 31st of March, having been ill the previous week with Fever. There was great heat of skin with intense headache and urgent thirst. Pulse 120, full. He was bled and took calomel and antimony. He quite lost his headache, but there was not the slightest remission, and on April the 9th there was evidence for the first time of severe cerebral disturbance. He looked dull and answered questions imperfectly. Pulse 110, irritable. Skin still hot and dry. Pupils dilated and sluggish. Leeches and cold applications were applied as well as blisters, but without benefit. He became more comatose and died on the 11th.

Inspection 8 hours after death.

Head.—The arachnoid and pia mater were much injected, and there was serous effusion to great extent between the pia mater and surface of the brain, as well as into the ventricles. The brain itself was rather soft, and on being sliced presented numerous small bloody points.

Chest.—Lungs and heart healthy. The pericardium contained from 3 to 4 ounces of straw coloured serum.

Abdomen.—Viscera all healthy.

CASE 8. INTERMITTENT FEVER.—John Veney, a gunner on the pension list, an old worn out man, country born, who had been several times previously in Hospital with Delirium Tremens and Fever, was again admitted on the 21st of June with Tertian Fever. He was greatly emaciated and much exhausted. He appeared to improve for a few days, when symptoms of Pulmonary disease supervened, and he sunk and died on the 17th of July.

Inspection 8 hours after death.

Chest.—The left lung was hepatized nearly throughout, the right one being healthy. The heart was normal, but there was slight serous effusion in the sac of the pericardium.

CASE 9. DYSENTERY.—Robert McGuffie Conductor in the Ordnance Department, 40 years of age, was admitted with Dysentery on December 30th 1846. He had been ill a month previous to admission. There was no abdominal tenderness even on the closest pressure. The evacuations were frequent and consisted of dark-coloured serum more or less mixed with grumous blood. Took calomel, opium, Ipecacuan, castor oil, &c., but no improvement took place and he died on the 6th of January.

Inspection.

Abdomen —Large patches of ulceration throughout the greater portion of the mucous lining of the transverse colon, the part not ulcerated being either softened and easily rubbed off with the point of the finger, or dark coloured and almost sphacelated. Liver considerably enlarged, and an abscess containing 8 ounces of pus found in the upper portion of the right lobe.

CASE 10. DYSENTERY.—George Wood, 37 years of age, sail maker in the Ship *Currency*, lately arrived from England, was admitted on the 31st De-

ember 1846, having been ill ten days with Dysentery. He was passing slime and blood repeatedly, and with great straining. There was great heat of skin, with a tongue thickly furred, a rapid pulse, and pain in the course of the ascending colon. He was freely leeches and took calomel, opium and ipecacuan, with opiate enemata and an occasional dose of castor oil; no improvement took place and he died on January 11th.

Inspection 6 hours after death.

Abdomen.—The mucous lining of the small intestines presented an ashy appearance; that of the large intestines was ulcerated in several places, though not to a great extent. A tubular portion of mucous membrane about six inches long was found depending from the anus. Liver, greatly enlarged and bound by its ligaments, which were much thickened, to the spine, from which it was with difficulty detached. In the right lobe there were three separate abscesses, and one in the left. The whole substance of the Liver was softened.

CASE 11. DYSENTERY.—John Barker, 40 years of age, clerk in the secretariate, was admitted on the 26th December 1846, having been ill several days with Dysentery. During the first few days he passed nothing but blood and slime, after that his stools were always feculent, and frequently consistent. At no time had he any abdominal pain. He was treated on the general principles I have already mentioned. No improvement took place. His pulse rose to 110 and 120, his tongue became brown and dryish, his stomach irritable, and he gradually became emaciated and died on February 16th.

Inspection 7 hours after death.

Chest.—Viscera healthy.

Abdomen.—The mucous coat of the colon ulcerated in numerous patches, and at the commencement of its transverse portion there was an ulcerated opening into the peritoneal cavity, two inches in length. There were a few patches of slight ulceration in the small intestines, and the omentum was much thickened. The Liver was healthy.

CASE 12. DYSENTERY.—Isaac Torboss, 35 years of age, Seaman, was admitted on the 16th of January with Dysentery, complicated with Pulmonary disease. Died on February 17th.

Inspection.

Chest.—Right lung healthy. The left lung was adherent to the pleura-costalis, and contained one rather large vomica.

Abdomen.—A few small patches of very slight ulceration in the colon. Liver healthy.

CASE 13. DYSENTERY.—Mary McDonald, 21 years of age, was admitted as a pauper on March 14th. She had for sometime been living a debauched life in the bazaar, and said she had been ill a month with Dysentery. On admission she was repeatedly purged, passing nothing but slime and blood. She

was much exhausted and greatly emaciated. Pulse scarcely to be felt. Died on the 31st.

Inspection. 12 hours after death.

Abdomen.—Slight ulceration in the lining membrane of the colon. Liver greatly enlarged, of a nutmeg color, not containing an abscess, but disorganized throughout, and so soft that it broke down under the slightest touch.

CASE 14. DYSENTERY.—Nathaniel Brewster, Seaman, 27 years of age, after being two months in India, was admitted into Hospital on the 11th of February with Peritonitis. The abdominal pain was severe; skin hot, pulse 110, irritable. He was bled, and took calomel and opium with an occasional dose of castor oil. He got quite well, but on the 19th of March was attacked with Dysentery, complicated with Pulmonary disease, and died on the 21st of April.

Inspection. Body much emaciated.

Chest. The Lungs on both sides partially adherent; the bronchial tubes filled with bloody mucus. The lower part of the right lung contained one small vomica. Heart and pericardium healthy.

Abdomen. There was about a pint of serum in the peritoneal cavity. The omentum presented slight marks of recent inflammatory action, as well as the greater part of that portion of the peritoneum which is reflected over the viscera. There were several bands of lymph gluing together portions of the intestines, some of old date, others of more recent formation. Slight ulceration in the mucous lining of the colon. Liver healthy.

CASE 15. DYSENTERY.—Lawrence Kinsalla, 45 years of age, a pensioned private, invalided in 1845, was admitted on the 26th of June, having been ill several days. Had much abdominal tenderness, and almost constant purging; stools consisting of dark colored, greenish serum mixed with blood. The treatment consisted in leeching, calomel, opium, ipecacuan, opiate enemata, an occasional dose of castor oil, fomentations, &c. but without benefit, and he died on July 2nd.

Inspection. 18 hours after death.

Abdomen. The sac of the peritoneum contained a few ounces of serum; the peritoneal coat of the small intestines was much congested, and there were a few flakes of lymph on the large omentum. The mucous lining of the colon was much ulcerated. Liver considerably enlarged, but normal in structure.

CASE 16. DYSENTERY.—George Rigby, 47 years of age, a pensioned private in one of Her Majesty's Regiments, was admitted on the 3rd of July with Dysentery, having been ill the preceding eight days. He was repeatedly purged; stools consisting chiefly of blood and slime, but with an occasional trace of feculent matter. No abdominal tenderness. Severe dyspnoea supervened on the 18th, and he died the following day.

Inspection. 12 hours after death. A few small patches of ulceration in the colon. The liver contained three abscesses, two in the right lobe, and one in the left, in which there were altogether about two pints of healthy pus. There were strong adhesions at one point between the liver and the diaphragm, and again between the diaphragm and the lower part of the right lung, and a small quantity of pus had made its way into the bronchi.

CASE 17. DYSENTERY.—Henry Wray, 23 years of age, employed in the Custom flotilla, was admitted with Dysentery on June 16th, having been ill several days. On admission, his stools consisted chiefly of blood and slime, with a little clay coloured consistent fecal matter. Treated on the principles already mentioned, he soon improved, and left the Hospital on July 9th apparently quite well. On August 2nd, however, he was again admitted, and in a state of partial collapse, with a cold clammy skin and almost imperceptible pulse. He said he had been repeatedly purged during the preceding eight and forty hours, his stools being serous and partly feculent. He took a dose of calomel and opium, and ammonia was given every half hour till his pulse rose. Re-action was followed by jaundice of the whole body, but without the slightest pain in the region of the liver, or in any part of the abdomen, even on the closest pressure. His stools continued frequent, but very variable in character, being sometimes distinctly feculent though fluid, and sometimes serous and more or less dark-colored; and latterly they were just like the ringings of beef. He took calomel, opium, ipecacuan; and opiate enemata, &c. were administered. No change took place till the 12th, when severe abdominal pain came on, and he died early on the 14th.

Inspection. 8 hours after death.

Abdomen. The viscera, generally, presented the same yellow tinge which the skin had. Portions of the mucous lining of the colon were soft, pulpy, dark-colored and almost sphacelated, while other portions throughout its whole extent were covered with patches of ulceration, some more advanced than others. In the ascending portion, there was a large, ulcerated opening through all its coats, and some of its contents had escaped into the peritoneal cavity. Liver much above the average size, but normal in structure.

CASE 18. DYSENTERY.—William Finch, 30 years of age, a Sergeant in the Ordnance Department, was admitted on October 30th in a dying state. He had just arrived from Scinde, where, he said, he had been ill three or four months with Dysentery and Fever. On admission he was greatly exhausted; his pulse was 130, very feeble and almost fluttering; his breathing was hurried and labored. He was not much purged. He died the day after his admission.

Inspection. 12 hours after death.

Body greatly emaciated.

Chest. Heart and lungs healthy. There was serous effusion into the cavity of the pericardium to the extent of about 3 ounces.

Abdomen. Patches of extensive ulceration throughout the whole of the mucous lining of the colon. Liver normal in structure, but considerably above the average size.

CASE 19. HEPATITIS.—Richard Black, 29 years of age; Gunner in the Ordnance Department, of a bilious temperament, was admitted on the 18th of December 1846, with well marked symptoms of Hepatitis. Previous to admission, he had for several days been troubled with Diarrhœa, but had no local uneasiness of any kind till the day on which he came to Hospital. He then complained of severe pain in the region of the liver, not increased by pressure, but greatly augmented on taking a full inspiration, and on every attempt to lie on his left side or back. Pulse 100, full but soft. He was freely leeches twice on the day of admission, and was put on calomel and antimony. He was then blistered. By the 22nd all pain had subsided, but the pulse kept up to 100, the bowels became irritable, and he began to sweat profusely at night. The calomel and antimony were omitted, and chalk mixture with opium substituted. He gradually wasted away and died on January 17th.

Inspection. Body greatly emaciated.

Chest. Viscera healthy.

Abdomen. The liver of its normal size, but much congested and the upper surface adherent to the diaphragm. In the upper and posterior part of the right lobe there was an abscess containing about a quart of pus. The omentum was smaller than usual and was adherent to the intestines. Other viscera healthy.

CASE 20. HEPATITIS.—Catherine Sutcliff, 44 years of age, a woman on the pension list, of dissipated habits, 24 years resident in India, was admitted on January 11th, with an enormously enlarged liver, the outline being distinct and well defined. She said she had had it several years, but that she had suffered but little all the time except occasionally from Diarrhœa. On admission she had but very slight local uneasiness, and complained chiefly of Diarrhœa. She sunk rapidly and died on the 18th.

Inspection.

Chest. Heart and lungs healthy.

Abdomen. Liver enormously enlarged, extending far into the left hypochondrium, and downwards into the umbilical region, displacing the stomach and intestines. Its substance was indurated and presented patches of tuberculous deposit. It weighed eight pounds and a half. The right kidney considerably enlarged, and slight ulceration on its upper margin.

CASE 21. HEPATITIS, COMPLICATED WITH PULMONARY DISEASE.—Harriet Williams, 26 years of age, who had long been leading a debauched life, and had been several times in Hospital with Delirium Tremens and Dysentery, was again admitted on the 6th of February in a dying state. She complain-

ed of great pain in the right hypochondrium. Her bowels were irritable, and she had cough and cold sweats. Her pulse was 130, feeble and fluttering. Tongue dry and blackish. She died the following day.

Inspection.

Chest. Heart healthy; considerable serous effusion into the sac of the pericardium. The left lung hepatized to nearly half its extent.

Abdomen. Liver greatly enlarged, extending into the left hypochondrium, and downwards into the umbilical region, of a pale color and weighing seven pounds and a half. Other viscera healthy.

CASE 22. HEPATITIS, COMPLICATED WITH PULMONARY DISEASE.—Edward Davis, Seaman in the Indian Navy, 50 years of age, and who had been two years in India, was admitted on the 1st of March, having been under treatment on boardship since the 21st of the preceding month for Hepatitis. On admission the pain in the right hypochondrium and other acute symptoms had subsided, and his system was under the influence of mercury. His bowels were irritable; his pulse up to a hundred, and he had a troublesome cough, with slight mucoid expectoration. Night sweats succeeded, with great emaciation, and he died on the 21st of April.

Inspection. 15 hours after death.

Chest.—Right lung perfectly normal. Left lung one mass of disease, hepatized nearly throughout its whole extent, and contained several small vomicae.

Abdomen.—Liver nearly normal both in size and structure. Gall bladder greatly enlarged, and containing masses of greenish, yellow, minute, pulpy, granules. Other viscera healthy.

CASE 23. HEPATITIS.—Ellen Watten, 37 years of age, 8 months resident in India, was admitted on September 3d with acute Hepatitis. The pain in the right hypochondrium was severe, and greatly increased both on pressure and on taking a full inspiration. Bowels very irritable and had been so, she said, for several days. Pulse 100, and somewhat irritable. Leeches were freely applied, and she took calomel and opium, with an occasional dose of castor oil, and she was blistered. She seemed to improve for a time. The pain quite subsided, and she had no night sweats or febrile accessions, the pulse falling to 88, and becoming quite soft. After some days, however, the bowels which had been less irritable, became again much relaxed. Opium in combination with mineral acids, or chalk mixture was now given. On October 1st, she was seized with severe vomiting and purging, the dejections not containing any purulent fluid. Sunk and died on October 6th.

Inspection.—Body greatly emaciated.

Abdomen.—Liver greatly enlarged, extending into the left hypochondrium and downwards below the umbilicus. A large abscess was found in the right lobe containing about two pints of pus. Other viscera healthy.

CASE 24. HEPATITIS.—John Saunders, 47 years of age, Gunner's Mate in the H. C. Brig Tigris, having drunk hard for years, and having several times

been the subject of Delirium Tremens, was attacked with Hepatitis on December 1st. He was at the same time restless, nervous, and tremulous, and had irregular febrile accessions. He took antimony, morphia, and calomel, and was blistered, and latterly he had camphor, ammonia, and wine. Sunk and died on the 26th.

Inspection. Six hours after death.

Chest. Pleura of right side adherent. Lungs and heart healthy.

Abdomen.—Liver much enlarged and softened, extending into the left hypochondrium and covering the stomach. It weighed six pounds. Spleen enlarged, weighing one pound and twelve ounces. Other viscera healthy.

CASE 25. CHOLERA SPASMODICA.—David Miller, 29 years of age, a Serjeant in the Ordnance Department, was admitted with Cholera about 6 P. M. on August 20th. He was in a state of partial collapse; skin cold and clammy, and the pulse scarcely perceptible. He had been ill eight and forty hours, and had not taken any medicine. Calomel and opium were given, and repeated doses of ammonia and brandy, with warm applications and frictions to the extremities. The vomiting and purging had nearly ceased when admitted, but the spasm in his legs was very frequent; his pulse soon became quite imperceptible; there was great restlessness, his breathing became labored, and he died at 1 P. M. the following day.

Inspection.

Chest.—Lungs collapsed, and quite healthy. All the large venous trunks gorged with blood of a dark, purplish hue.

Abdomen.—Mucous lining of the stomach vascular. Liver large but normal in structure. Spleen very large but normal. The bladder contained a small quantity of healthy urine.

CASE 26. PHTHISIS PULMONALIS.—John Hart, 23 years of age, Cook of the Ship Devon, lately arrived from England, was admitted on December 24th 1848, with well marked symptoms of Phthisis Pulmonalis. He was greatly emaciated, and had been ill three months with cough, copious expectoration, and pain in the chest. Night sweats and Diarrhœa succeeded, and he died on the 14th of March.

Inspection.

Chest.—Lungs adhering on both sides to the pleuræ costales, the adhesions on the right side so firm, as to require some force in separating them. Both lungs thickly tuberculated, and containing several small cavities.

CASE 27. PHTHISIS PULMONALIS.—Hugh Powell, 21 years of age, Seaman in the Indian Navy, was admitted on January 3d in a very emaciated state, having been ill several weeks with pain in his right hypochondrium and chest; slight cough, mucoid expectoration, and rapid weak pulse. His system had been effected with mercury previous to admission. On percussion there was evident dulness on both sides of the chest. He took iodine, ipecacuan, digi-

talís, hyoseyamus, hydrocyanic acid, &c. and had counter irritation used. No improvement took place ; night sweats and Diarrhœa supervened, and he died on May 23rd.

Inspection. 9 hours after death.

Chest. Both lungs studded with small tubercles, and much gorged with venous blood, so that there was a total absence of crepitation on pressing them with the fingers.

Abdomen—Liver considerably enlarged.

CASE 28. PHTHISIS PULMONALIS.—William Vincent, 24 years of age, was admitted as a pauper on January 31st in an advanced stage of Phthisis, having been ill some weeks with copious, puriform expectoration, cough, and pain in his chest. He was greatly emaciated. Night sweats and Diarrhœa soon exhausted his remaining strength, and he died on February 20th.

Inspection. 8 hours after death.

Chest. The entire right lung one mass of disease, tuberculated throughout, and containing numerous small vomicæ. The left lung also tuberculated, but to a less extent, and containing several vomicæ, but less numerous and extensive than in the right. Heart and pericardium of their natural appearance, but the sac of the latter contained about four ounces of serum.

Abdomen.—Viscera all healthy.

CASE 29. PHTHISIS PULMONALIS.—William Barnes, Quarter Master in the the H. C. S. Frigate Moozuffer, recently arrived from England, was admitted with Phthisis Pulmonalis on February 24th, having been ill the whole voyage out. He said his illness commenced with spitting of blood while in the channel. Died on March 15th.

Inspection. 14 hours after death. Body greatly emaciated.

Chest.—Lungs on the right side adhering firmly to the pleura costalis. Both lungs full of small vomicæ about the size of beans, with one or two large ones at the base.

Abdomen.—Viscera all healthy.

CASE 30. PHTHISIS PULMONALIS.—Evan Perry, Seaman in the H. C. S. Frigate Moozuffer, recently arrived from England, 35 years of age, after being ill some weeks, was admitted in an advanced stage of Phthisis on March 18th, and died on the 26th.

Inspection. Body greatly emaciated.

The right lung strongly adherent to the pleura costalis, and full of small vomicæ ; the lower lobe hepatised. The left lung not adherent but containing several small vomicæ. Heart rather large, and bony deposit in the valves.

CASE 31. PHTHISIS PULMONALIS.—Jonathan Grieves, 19 years of age, Seaman in the Ship Glen Huntley, recently arrived from England, was admitted on the 29th of April in a very emaciated state in an advanced stage of Phthisis, having during the preceding three months been suffering from pain

in the chest, cough, expectoration, night sweats, and Diarrhœa. He died on the 11th of May.

Inspection. 12 hours after death,

Chest — Lungs on both sides adherent, and so strongly in some places as to require the knife to separate the adhesions. Both lungs tuberculated to a great extent and containing numerous small cavities.

Abdomen.—Viscera perfectly healthy.

CASE 32. PHTHISIS PULMONALIS.—Henry Portfield, 25 years of age, Seaman in H. M. Brig Cruizer, was admitted in a very advanced stage of Phthisis on June 9th, and died on the 15th.

Inspection. Body greatly emaciated. Lungs on both sides strongly adherent to the costal pleuræ. The upper portion of the right lung was studded with tubercles, and the base contained one large cavity. The left lung was also studded with tubercles at its apex. There was no vomica.

CASE 33. PHTHISIS PULMONALIS.—John Hunter, 24 years of age, Seaman in the Ship James White, just arrived from Hull, was admitted on the 22nd of October in an advanced stage of Phthisis. He said he had only been ill six weeks. He was greatly emaciated, had profuse night sweats, cough, and scanty expectoration. Died on November 14th.

Inspection.

Extensive tuberculous deposit throughout the greater portion of both lungs, with vomicæ in the right lung, but few and small in size.

CASE 34. PHTHISIS PULMONALIS.—Catherine Rourke, 28 years of age, resident about a year in India, was admitted on the 27th of October in a very advanced stage of Phthisis. She had been ill some months with cough, puriform expectoration, profuse night sweats, and Diarrhœa. She was greatly emaciated and died on November 17th.

Inspection.

Extensive tuberculous deposit throughout the greater portion of both lungs, more particularly towards the apex. The left lung contained several small cavities.

CASE 35. PHTHISIS PULMONALIS.—William Hill, 43 years of age, six months resident in India, after suffering several months from cough, expectoration, night sweats, and occasional Diarrhœa, was admitted as a pauper on the 6th of October with these symptoms increased in severity. He continued to be harassed with cough and Diarrhœa, became more and more emaciated, and died on November 23rd.

Inspection. Body greatly emaciated.

The inferior portion of the lower lobes of both lungs hepatized. No tuberculous deposit; considerable serous effusion into the sac of both pleuræ. The other thoracic, and all the abdominal viscera healthy.

CASE 36. BRONCHITIS.—Thomas Pierce, 32 years of age, Seaman, was admitted on January 22nd in a very emaciated state, having been ill several months. He complained merely of debility and cough, with but very slight mucoid expectoration. Had no pain in the chest, no night sweats, or diarrhœa. The debility increased, and he died on February 8th.

Inspection, 8 hours after death.

The mucous lining of the large bronchi much injected. The smaller bronchi full of mucus. There were adhesions between the pleuræ on both sides. There was slight tuberculous deposit at the apex of the right lung. Heart normal, as well as all the abdominal viscera.

CASE 37. BRONCHITIS.—William Smith, 35 years of age, Seaman in the Oriental, just arrived from England, was admitted on September 4th, complaining merely of slight cough, without expectoration or any local uneasiness. Pulse soft and natural in frequency. No febrile accessions. No dulness on percussion, but the respiratory murmur was less distinct on the left side, than on the right. Was entered as Bronchitis. He took a little antimony, ipecacuan, and hyoscyamus, and improved for a time, but towards the middle of the month he became worse. The breathing became hurried and abdominal, but without any pain; pulse 120, but soft, and there were slight febrile accessions. His cough became more troublesome, and he began to expectorate, the sputa being small in quantity and consisting of viscid mucus of a bluish tinge. Leeches were applied on two successive days, and small doses of calomel were added to the antimony. His breathing became natural. He had no pain at any time in his chest, and took the deepest inspiration without uneasiness, but the febrile accessions though slight and irregular, became frequent. In this state he continued with little variation, becoming gradually emaciated and exhausted. Morphia procured sleep, and the antimony, ipecacuan, and hyoscyamus were continued, the calomel being omitted. Quinine was also tried, but without benefit and he gradually sunk and died on November 21st.

Inspection. A small portion of the lower part of the left lung was hepaticized. The right lung healthy, with the exception of very slight tuberculous deposit at the apex. About ten ounces of serum were effused into the sac of the left pleura.

CASE 38. ANEURISM OF THE ARCH OF THE AORTA.—William Hampton, an old pensioned soldier, who had been several times in Hospital with slight cough and what was supposed to be rheumatic pain in the left shoulder, was again admitted on the 11th of May with cough, and slight mucoid expectoration. No uneasiness in the chest. Had slight pain in the left shoulder. He was entered as a case of Bronchitis. He continued much in the same state till the 24th of the same month, when about 8. P. M., whilst talking to a friend, he suddenly leaned over the edge of his bed as if for the purpose of spitting into a chatty, and his friend saw blood flowing from his mouth and nose. Within ten minutes he was dead.

Inspection. 12 hours after death.

Right lung perfectly healthy, the left gorged with blood. Having removed the left lung, a large aneurism of the Arch of the Aorta was found, with adhesions to the anterior portions of the bodies of the 2nd, 3rd, and 4th, dorsal vertebræ. It had caused death by bursting into the œsophagus which was distended with coagulated blood, and with portions of the walls of the sac. The heart was quite healthy. The stomach greatly distended, containing about two pints of fluid blood, and at least a pound of coagulated.*

CASE 39. EBRIETAS.—Charles Green, Mipshipman in the Indian Navy, 27 years of age, four years resident in India, was brought to Hospital about noon on the 10th of July, having been troublesome all the morning in consequence of hard drinking. He was treated with antimony, and towards evening he became perfectly quiet. His pupils acted freely, and he had no headache. The pulse was 90, full but soft. He went on well till 2. P. M., of the following day when he suddenly became delirious, with a rapid weak pulse and cold extremities. Ammonia and brandy were given in frequently repeated doses. About 5. P. M., he became very troublesome, throwing himself about the bed, and requiring to be held. The extremities became colder, the pulse weaker, and he died at 8. P. M. the same day.

Inspection. 12 hours after death.

Head. The dura mater was firmly adherent to the inner table of the skull, requiring considerable force to separate them. The membranes, as well as the substance of the brain were highly injected. The ventricles were full of serum, and there were about three ounces at the base.

CASE 40. EBRIETAS.—Thomas Shaw, 39. years of age, a Serjeant on the pension list, who had been repeatedly in Hospital with Peritonitis and Fever, was again admitted on May 19th in a state of furious drunkenness. It was stated that he had been drinking hard a whole month, and that during that time he had not once gone to bed sober. The cold douche partly sobered him. The following morning he was quite sensible, but complained of headache, dizziness, and irritability of stomach. He took effervescing draughts with ammonia. On the evening of the same day he complained of intense pain over the entire surface of the abdomen and back, greatly increased on every attempt to take a full inspiration. Bowels confined. Had a turpentine enema, and took calomel, opium and colocynth, followed by senna and salts, mustard poultices, &c. His bowels were freely moved, but no improvement took place, and he sunk and died at 9. A. M., on the 21st.

Inspection. 7 hours after death.

Chest. Heart healthy. The whole external surface of the pericardium was covered with fat, so as to encroach materially upon the space usually occupied

* The Aneurismal Tumor is preserved in the Museum of the Grant Medical College.

by the lungs. The lungs themselves were gorged with blood, and studded with miliary tubercles.

Abdomen. Liver greatly enlarged, weighing eight pounds and a quarter, and occupying a considerable portion of the whole cavity of the abdomen, but normal in structure. Spleen considerably enlarged. Peritoneum in one or two places adherent, and presented other marks of inflammation, but not of recent date; mesenteric glands enlarged and indurated.

CASE 41. EBRIETAS.—Honourable Hryden, a pauper, 38 years of age, long resident in India, after leading a life of intemperance, was brought to the Hospital on May 16th, by a Policeman who found him lying in the streets, in a state of perfect insensibility. His pupils were contracted; face pale, surface of the whole body cold and clammy; breathing scarcely perceptible; pulse very small and so rapid as to render it impossible to count the pulsations accurately. The stomach pump was used, but it did not bring away any thing. Ammonia and other stimulants were freely given. He seemed to rally for a short time, but suddenly relapsed, and died three hours after admission.

Inspection. 10 hours after death.

Head. On removing the membranes of the brain, a small portion of the convolutions of the left hemisphere, was found partially disorganized, and somewhat granular. There was general and considerable venous congestion of the brain, and serous effusion at the base to a great extent.

Abdomen. Liver enlarged and of a nutmeg color. A few patches of ulceration in the mucous lining of the stomach. Other viscera healthy.

CASE 42. EBRIETAS.—Peter Kane, 45 years of age, a pensioned soldier, long resident in India, after being repeatedly in Hospital from the effects of drinking, was again admitted on the 11th October, under the immediate influence of liquor, and was marked down "Ebrietas." On the following day, when perfectly sobered, the first stage of Delirium Tremens came on. He was nervous and tremulous, and could not sleep. He took antimony with small doses of Tinct. Opii. On the 14th, the second stage supervened, and he became greatly excited and very troublesome. The same treatment was continued, but with the addition of the cold douche and brandy. On the 16th, the surface became cold and clammy, the pulse rapid, small and weak, and the excitement subsided into a low muttering delirium. He died about midnight.

Inspection. 8 hours after death.

Head. Vessels of the brain much congested. The ventricles full of serum, and about two ounces at the base.

CASE 43. DELIRIUM TREMENS.—Robert Foyer, Engineer in the Indian Navy, 47 years of age, and seven years resident in India, was brought to the Hospital at noon on November 20th. He was reported to have been drinking hard for some time. On admission he was in a state of partial collapse. Brandy was immediately given, but he died an hour after admission.

Inspection.

Head. Vessels of the brain slightly congested; and there was serous effusion at the base of the brain to the extent of about two ounces.

Abdomen.—Stomach healthy, and contained some half digested farinaceous looking food. Liver enormously enlarged, weighing ten pounds and six ounces. Other viscera healthy.

CASE 44. DELIRIUM TREMENS.—John Powell, an Apothecary, 39 years of age, was brought to the Hospital on October 22nd with a jagged wound immediately above the thyroid cartilage, opening into the trachea. It was said to have been inflicted by himself with the intention of committing suicide. He was reported to have been drinking hard for some days previously. He did well till the 24th, when Delirium Tremens supervened. He fancied he saw people standing around his bed ready to kill him. He became very restless and excited, and repeatedly attempted to get out of bed, his countenance expressive of great mental anxiety. He was treated with antimony, small doses of opium, the cold douche, and latterly brandy. He died on the 26th.

Inspection.

The brain was unusually small weighing only two pounds and ten ounces. Vessels much congested, and general effusion of serum over the surface and at the base, amounting perhaps altogether to 3 or 4 ounces. The wound in the throat was very deep, almost severing the trachea.

CASE 45. DELIRIUM TREMENS.—Frederick James, 42 years of age, an overseer, fourteen years resident in India was admitted on December 11th with Delirium Tremens. He was very talkative, but quite incoherent, and was reported to have been in this state three days. The antimonial mixture was ordered every two hours, and the cold douche. He got no sleep, and was noisy and troublesome till midnight of the 12th, when he slept for some hours and seemed much better. On the 16th, however, he began again to talk incoherently, his extremities became cold, and his pulse rapid and weak. A blister was applied to the scalp, and brandy was given every hour, with ether and morphia in frequent doses. Died on the 18th.

Inspection.

Head. A considerable quantity of blood effused between the scalp and dura mater, and general serous effusion over the surface of the brain and in the ventricles.

Abdomen.—The liver large and indurated. Other viscera healthy.

CASE 46. DELIRIUM TREMENS.—Stephen Keamey, 43 years of age, a Private on the pension list, 22 years resident in India, was admitted on December 18th with Delirium Tremens. Had been drinking hard the preceding ten days, and had not had any sleep for three nights. His stomach and bowels were very irritable, and he was almost pulseless. He could keep nothing on

his stomach but a little sago and wine, with tincture of opium in chalk mixture. The following day he was quite incoherent, got no sleep, and died at 6 P. M.

Inspection. 14 hours after death.

Body much emaciated.

Head —Brain congested, and about two ounces of bloody serum at the base.

Abdomen. Liver enlarged, light coloured, and indurated. Other viscera healthy.

CASE 47. PARALYSIS.—William Crouply, 28 years of age, after great exposure to the sun, fell down suddenly on April 11th and was insensible for some time. The following day he was brought to Hospital. He had lost the power of motion in the whole of the left side of the body, but he retained partial sensation. He was perfectly sensible, but complained of pain in his head. His pulse was above 100, full but soft. Leeches were freely applied to the head, and afterwards cold applications. He took calomel, jalap, croton oil, &c. and had a blister to the nape of the neck, but he did not improve. He became gradually insensible, and died on the day after his admission.

Inspection. 14 hours after death.

On removing the skull there was a general oozing of blood from the whole surface of the dura mater. There were several clots of blood between the layers of the arachnoid. The brain itself was much congested, and there was a large clot of blood at the base.

CASE 48. SCORBUTUS.—John Albert, 36 years of age, Seaman in the *Armi-sted*, just arrived from Glasgow, was admitted on June 7th, having been suffering the preceding three months from scurvy. The gums were swollen and tender, bleeding at the least touch. The right side of the face was greatly swollen, particularly at the lower part, and there were several dark patches of ecchymosis. The lower maxillary bone on that side was denuded of its periostium, and the teeth were all loose. He was greatly emaciated, had a feeble, weak pulse and no appetite. He could take no nourishment beyond beeftea, a pint of beer, and wine; he took the usual scurvy mixture but without benefit, and he gradually sunk and died on the 19th.

Inspection. 15 hours after death. Body greatly emaciated.

On dissecting down to the lower maxillary bone, the soft parts surrounding the right ramus were found greatly diseased, being fetid, softened, much infiltrated and almost gangrenous. The entire surface of the ramus, both externally and internally was denuded of its periosteum. Circumstances prevented any examination of the viscera.

CASE 49. NEPHRITIS.—James Smith, 48 years of age, Boatswain on the *H. C. S. F. Moozuffer*, was admitted on July 13th, having been under treatment on board for Nephritis since the 4th of June. He had been bled twice, and had been cupped. On admission there was great prostration of strength, with

tendency to delirium. He was continually moaning, and was disinclined to answer questions, but was sufficiently collected to complain of severe dragging pain in the loins, shooting up to the shoulders and down to the scrotum, with retraction of the testicles at times. The following day typhoid symptoms supervened, his tongue became dry and brown, skin very hot, and pulse rapid, but soft and small, and there was low muttering delirium. He took antimony, with small doses of morphia and an occasional dose of castor oil, but without improvement. He gradually became worse and died on the 19th.

Inspection.

Head. General effusion of serum over the surface of the brain, and about four ounces at the base.

Chest. Viscera normal.

Abdomen.—Right kidney perfectly healthy in size, structure, and general appearance. The left equally so in structure but above the average size. No trace of inflammatory action in either. Liver slightly hypertrophied. Other viscera healthy.

CASE 50. ENTERITIS.—John William Crossgadden, 29 years of age, an Indo-Briton, corrector of the press, was admitted on the 17th of February with Enteritis, having been taken ill the proceeding day. He could not bear the slightest pressure on any part of the abdomen. His stomach was very irritable, bowels confined, and his pulse 110, small and easily compressed. Sixteen dozen leeches were applied at intervals of a few hours, followed by fomentations, and he took castor oil, and repeated doses of calomel and opium. The bowels were freely moved, but without any diminution of pain, his breathing became labored, his pulse more rapid and small, and he died about midnight of the 18th.

Inspection. 8 hours after death.

Chest. Viscera healthy.

Abdomen.—The peritoneal sac contained a small quantity of greenish yellow serum. The peritoneum lining the abdominal parietes quite healthy; but that portion reflected over the small intestines much congested and partially covered with flakes of soft lymph recently deposited. The mucous lining of the whole of the small intestines greatly congested.

CASE 51. ENTERITIS.—Alfred Orton, 20 years of age, Seaman lately arrived in India, was admitted on the morning of April 22nd with severe abdominal tenderness, nausea, cold clammy skin, and a small weak rapid pulse. He had been ill several days and was evidently sinking. He took calomel, opium, &c. but rapidly became worse and died before midnight of the same day.

Inspection.

Chest. Viscera healthy.

Abdomen. Peritoneal surfaces injected; convolutions of the intestines bound together by flakes of lymph, and adherent to the omentum. The mucous lining of the small intestines florid and pulpy, but no ulceration.

CASE 52. DIARRHŒA.—Daniel Love, 40 years of age, Gunner in the Indian Navy, of a scrofulous constitution, who had been repeatedly in Hospital with indolent unhealthy ulcers on the left leg, was again admitted on the 19th of May, the surface of one of the old sores having once more ulcerated. He did well till June 8th, when for the first time he complained of looseness of the bowels, the stools being feculent and yellow. They continued irritable but without the slightest griping, straining, or any uneasiness, till the 20th, when he had repeated calls to stool, and passed a considerable quantity of grumous blood. He had no pain or uneasiness of any kind. He bore pressure over the abdomen without the slightest inconvenience. The pulse rose to above a hundred, and was small and weak. Tongue brownish but moist. He had been taking chalk mixture, with tincture of opium and ipecacuan, and a little calomel and opium. Very little alteration was made in the treatment. On the 21st he passed the same kind of stools involuntarily, hiccups supervened, and he died on the 22nd.

Inspection. The liver was enlarged, but normal in structure. The mucous coat of the colon was extensively ulcerated, and in some places almost gangrenous.

CASE. 53. DROPSY.—Robert Weldon, 48 years of age, Quarter Master Sergeant of the 11th Regiment N. I., was admitted on the 15th of January with Dropsy, the result of fever in Scinde, from whence he had just arrived with a constitution broken down by climate, but without any evidence of visceral disease. On admission the serous effusion was confined to the cavity of the peritoneum and the cellular tissue of the lower extremities, but towards the end of the month there was evidence of effusion into the chest. He sunk gradually, and died on February 9th.

Inspection. 8 Hours after death.

The cellular tissue of the extremities loaded with serum.

Chest. Heart and lungs perfectly healthy. The pericardium contained about four ounces of greenish yellow serum. The sacs of both pleuræ contained a considerable quantity of serum of the same color.

Abdomen. The peritoneal cavity was greatly distended with serous effusion. Liver and all the other viscera perfectly healthy.

CASE 54. DROPSY.—George Gordon, 50 years of age, of a broken down constitution, was admitted as a pauper on October 17th with Ascites. There was no evidence of visceral disease. He took diuretics, tonics, mineral acids, &c., but no improvement took place. The effusion extended to the thorax, and he gradually sunk and died on January 7th.

Inspection. 11 hours after death.

Chest. Each pleural sac contained about a pint and a half of pale yellow serum. The lungs were of a darker hue than usual, and the heart was small pale, and flabby.

Abdomen. The peritoneal cavity contained about 8 pints of pale yellow serum. Liver smaller than natural, of a greyish tint externally, but on cutting into it of a brown color, and granulated in texture.

CASE 55. DROPSY. Mary Ann Kinsely, 34 years of age, a woman on the pension list, was admitted with Anasarca on the 1st of September. She said she had been ill with swelling of the lower extremities during the preceding four months. She had also a small collection of fluid in the peritoneal sac. There was no perceptible enlargement either of the liver or spleen. She was said to have been in the habit of drinking hard. She took tonics diuretics, &c. but without benefit, and died on the 16th of December.

Inspection. 15 hours after death.

Chest—The pericardium contained about an ounce of serum. The left ventricle of the heart was somewhat thickened. Lungs healthy.

Abdomen.—The peritoneal cavity contained about twenty pints of serum. Liver somewhat enlarged and lighter colored than natural. Kidneys also enlarged and light colored. Other viscera healthy.

28. This terminates the medical portion of my report. It was my intention to have entered at some length upon the consideration of the many points of importance connected with the Morbid Anatomy of the cases, thus briefly reported, when viewed in relation to their bearings on practice, but bad health and want of time, compel me to relinquish this intention, at all events for the present.

*RETURN of the Prevailing Diseases in the European General Hospital and the result of the Treatment for 1847: —————
Bombay 1st January 1848.*

DISEASES.	Remained 1st January.	Number admitted during the year.	Total.	Number discharged or cured.	Number died.	Number Remaining.	Percentage discharged or cured.	Percentage died.	Percentage Remaining.	Average age of Patients for the year.	Average Number of days each patient was in Hosptl.
	72	1,061	1,133	998	64	71	88.084	5.648	6.266	29.488	20.027
Fever.....	5	181	186	173	9	4	93.010	4.838	2.150	27.521	12.177
Hepatitis.....	4	39	43	37	6	..	86.046	13.953	..	31.790	22.767
Dysentery	13	63	76	62	11	3	81.578	14.473	3.927	28.381	26.118
Cholera .....	..	1	1	..	1	..	..	..	..	..	1.000
Diarrhœa.....	..	45	45	41	2	2	91.111	4.444	4.444	31.577	11.444
Delirium Tremens.....	1	24	20	20	3	2	80.000	21.000	8.000	36.240	16.480

ARTICLE. IV.

* *Contributions to the Military Medical Statistics of China.*
By John Kinnis, Esq., Deputy Inspector General H. M.'s
Hospitals Bombay.

Presented December, 1848.

I.—ON THE HEALTH OF HER MAJESTY'S AND THE HON'BLE EAST INDIA COMPANY'S TROOPS, SERVING IN CHINA, FROM 1ST APRIL 1845 TO 31ST MARCH 1846.

The Queen's troops, as in the preceding year, consisted of small detachments of the Royal Sappers, Miners, and Ordnance, and the 18th Royal Irish and 98th regiments, the Company's, of detachments of the Madras Artillery, Madras Sappers, Miners, and China Gun Lascars, and the 42nd regiment Madras Native Infantry; the average strength of the European non-commissioned Officers and Privates being 1854, and of the Native 1223.

In Victoria were stationed the Royal Artillery, Sappers and Miners and Civil Ordnance; the Madras Sappers, Miners, and China Gun Lascars; the right wing of the 18th Royal Irish, and, from May the date of its arrival in the command, the head quarters of the 42nd regiment M. N. I.: at Chusan, the left wing of H. M. 98th regiment, the first month, both wings the rest of the year; the Madras Artillery; and, from June to March, a detachment of the 42nd regiment M. N. I.

In December 1844, had arrived from England, in the Java transport, and been first quartered at Saiwan, 131 men of the 18th regiment. On the 10th April following, 129 of these, comprising 124 young and recently enlisted soldiers, were sent to Stanley. At the same station arrived, on the 14th May from Chusan, the left wing of the regiment, 293 strong, having left behind about 35 men sick in hospital, or employed in civil duties. Four of the sick died in the month of May, and the survivors returned to Hong Kong on the 12th January 1846. From 29th May to 1st October, the 18th had a second detachment at Saiwan, of from 70 to 98 men, which marched to Stan-

* *Note by the Secretary* The present Article is a continuation of that concluded at Page 34.

ley on the 2nd October, and was replaced by a third detachment of the same corps, comprising 7 officers, 74 men, 3 women and 3 children, on its arrival from England in the freight ship *Adelaide*.

In January 1845, the left wing of the 98th regiment sailed from Hong Kong for Chusan to relieve the right wing of the 18th, which arrived in Victoria in the end of February; and, on the 8th April, the right wing of the 98th sailed from Hong Kong for Chusan, to relieve the left wing of the 18th. The 98th had 18 men employed in the Victoria Police throughout the year. On the 21st September 1845, 7 officers and 65 men of that corps arrived from England in the freight ship *Sea Park*, and were divided betwixt two small buildings on Kellet's island, and the hired barracks of the Royal Artillery, in Hollywood road, until the 18th November, when they were sent to Saiwan; but were brought back to Victoria on the 9th January, in consequence of the extreme prevalence of ague among them, and accommodated in Gillespie Barracks. In the beginning of March, they embarked for their head quarter station Chusan, and arrived there on the 22nd of that month.

The 42nd regiment Madras N. I. arrived from India, in four transports, betwixt the 4th and 18th May 1845. The same vessels carried back from Hong Kong the 4th regiment Madras Native Infantry, and the left wing of the 2nd, and from Chusan the right wing, which was relieved by a detachment of the 42nd, 248 strong, and sailed on the 9th June. The 42nd regiment had two smaller detachments, one of 100 men at Stanley from 4th December, another of 85 men at Saiwan from 9th January, to 31st March. I possess no materials for any account of the health of the 2nd and 4th regiments M. N. I., during the small portion of this annual period they remained in the Command. Excluding them—

Of the troops serving in China, from 1st April 1845 to 31st March 1846,

	Euro:	Native.	Total.
The average strength was.....	1854	1223	3077
Number sick 1st April 1845	160	48	208
Average daily sick.....	187	97	284
Admissions during the year.....	4858	2450	7308
Deaths.....	190	89	279
Invalids sent home.....	75	0	75
Number sick 31st March 1846	115	63	178
And the proportion per 1000 of the			
Daily sick.....	101	79	92
Admissions.....	2620	2003	2375
Deaths.....	102	73	91
Deaths to admissions	39	32	38
Invalids to strength	40		

	The average strength was.	Average daily sick	Admissions.	Deaths.	Invalids.
Of the Royal Arty. Sap. Min. and Civil Ordnance, <i>Victoria</i>	77	6	123	4	5
Madras Artillery Europeans, <i>Chusan</i> ..	63	4	117	2	
H. M.'s 18th Regt. <i>Hong Kong</i>	900	117	2618	147	55
H. M.'s 98th Regt. <i>Chusan</i>	814	60	2000	37	15
Total Europeans.....	1854	187	4858	190	75
Madras Artillery Natives, <i>Chusan</i>	88	2	41	1	
42nd regt. M. N. I., at <i>Sea, Hong Kong and Chusan</i>	936	85	2112	86	
Total Natives.....	1223	97	2450	89	
Total Europeans and Natives.....	3077	284	7308	279	

The proportion per 1000 therefore was

	Sick to strength.	Admissions to strength.	Deaths to strength.	Deaths to Admissions.	Invalids to strength.
Royal Artillery, &c. <i>Victoria</i>	78	1597	52	33	65
Madras Artillery Europeans, <i>Chusan</i> ..	63	1857	32	17	
H. M.'s 18th regt. <i>Hong Kong</i>	126	2910	163	56	61
H. M.'s 98th regt. <i>Chusan</i>	74	2457	45	18.5	18
Total Europeans	101	2620	102	39	40
Madras Artillery Natives, <i>Chusan</i>	23	466	11	24	
Madras Sap. Min. &c., <i>Hong Kong</i> ...	50	1492	10	6.7	
42nd Madras Native Infantry.....	91	2256	92	41	
Total Natives.....	79	2003	73	36	
Total Europeans and Natives.....	92	2375	91	38	

Varied.

And the proportion of

	In Europeans.		In Natives.		
	From	To	From	To	
Average daily sick.....	63	129	23	99	} per 1000 of the strength.
Annual admissions.....	1597	2910	466	2395	
Deaths	32	163	10	105	
Deaths	17	56	6.7	49	per 1000 of the admissions.

Though the proportion of admissions was above one fourth, and of deaths above one ninth, larger in Europeans than Natives, the proportion of both was smaller in the Europeans of the Royal and Madras Artillery and Ordnance than in the Natives, as a whole; and H. M.'s 98th regiment, with a larger proportion of admissions, had a smaller proportion of deaths than the 42nd regiment M. N. I., whether in Hong Kong or Chusan. The natives of the Madras Artillery sent to hospital fewer than half their average strength, and lost only one man, or 11 per 1000, while the 18th Royal Irish regiment sent to hospital above three times its average strength, and lost 163 men per 1000.

$a. 9 \times 129 = 1161 + (173 \times 84 =) 14,532 = 15,693 \div 365 = 43.$
 $b. 361 \div 12 = 30 + (245 \times 33 = 8085 \div 365 =) 22 = 52.$
 $c. 139 \times 65 = 9035 \div 365 = 25. \quad f. 118 \times 100 = 11800 \div 365 = 32.$
 $d. 53 \times 65 = 3445 \div 365 = 9.44. \quad g. 82 \times 85 = 6970 \div 365 = 19.$
 $e. 10 \times 637 = 6370 \div 12 = 531. \quad h. 10 \times 248 = 2480 \div 12 = 207.$

In the following Tables corresponding letters of the alphabet are prefixed to the annual averages here calculated, to enable us to refer from them to this page for the average strength of the period, as well as for the season of the year, during which all the admissions and deaths occurred.

Of the 18th detachment at Chusan all the admissions here given, and two of the deaths occurred in the left wing in April, from an average *annual* strength of 30. The average annual strength of the small party left behind, chiefly sick in hospital, was 22, and of these 4 more died ; but the number of admissions is unknown, as a nominal list, transmitted to Hong Kong never reached its destination, and the 98th regiment had carried the hospital records to Bengal, before this deficiency was missed. The ratio of admissions, therefore, has been calculated from an average strength of 30, the ratio of deaths from an average strength of 52 ; and, to prevent misconception, the smaller average for admissions and the larger for deaths have been specified in the table, against the 18th detachments at Chusan, and the different larger bodies of which these detachments were component parts.

This Table exhibits of every Corps at every Station in the Command the Annual average Strength, Admissions, and Deaths, with the Ratio per 1000 of the Admissions and Deaths to the average strength, and of the Deaths to the Admissions.

EUROPEANS.										NATIVES.				
	Royal Artillery	Sap. Min. and Civil	Ord. Dept.	Madras Artillery	Pearns.	H. M.'s 18th Rl.	H. M.'s 98th Rl.	Total.	Madras Sap. Min. and Gun	Madras Artillery	42d Rl. Madras N. I.	Total.	Grand Total.	
Victoria...	Average strength.....	77		..	..	549	c. 43	669	199	..	e. 531	730	1399
	Admitted.....	123		..	..	1181	97	1401	297	..	1399	1696	3097
	Died.....	4		..	..	41	2	47	2	..	68	70	117
	Adms. to strength.....	1597		..	..	2151	2256	2094	1492	..	2635	2323	2214
	Deaths to strength.....	52		..	..	75	47	70	10	..	128	96	84
Stanley...	Deaths to admission.....	33		..	..	35	21	34	6.7	..	49	41	38
	Average strength.....	..		..	..	256	..	256	..	..	f. 32	32	288
	Admitted.....	..		..	..	1105	..	1105	..	..	78	78	1183
	Died.....	..		..	..	96	..	96	..	..	1	1	97
	Admission to strength.....	..		..	..	4316	..	..	..	..	2437	..	4108
Hong Kong	Deaths to strength.....	..		..	..	375	..	..	..	..	31	..	337
	Deaths to admissions.....	..		..	..	87	..	..	..	..	13	..	82
	Average strength.....	..		..	..	a. 43	d. 10	53	..	..	g. 19	19	72
	Admitted.....	..		..	..	286	76	362	..	..	38	38	400
	Died.....	..		..	..	4	..	4	..	..	1	1	5
Saiwan...	Admissions to strength.....	..		..	..	6651	7600	6830	..	..	2000	..	5556
	Deaths to strength.....	..		..	..	93	..	75	..	..	53	..	69
	Deaths to admissions.....	..		..	..	14	..	11	..	..	26	..	12
	Average strength.....	77		..	..	848	173	978	199	..	582	781	1759
	Admitted.....	123		..	..	2572	2	2868	297	..	1515	1812	4680
Total.....	Deaths to strength.....	4		..	..	141	2	147	2	..	70	72	219
	Admissions to strength.....	..		..	..	3032	3261	2913	..	..	2603	2320	2661
	Deaths to strength.....	..		..	..	166	38	150	..	..	120	92	124
	Deaths to admissions.....	..		..	..	55	12	51	..	..	46	51	47
	Average strength.....	..		..	..	b. { 30 } { 52 } 46	761	b. { 854 } { 876 } 1990	..	88	h. 207	295	b. { 1149 } { 1171 } 2409
Chusan.....	Admitted.....	..		..	..	117	1827	1990	..	41	378	419	58
	Died.....	..		..	..	6	35	43	..	1	14	15	53
	Admissions to strength.....	..		..	..	1557	2401	2330	..	466	1926	1427	2097
	Deaths to strength.....	..		..	..	32	46	49	..	11	68	51	50
	Deaths to admissions.....	..		..	..	17	19	22	..	24	37	36	24
China.....	Average strength.....	77		..	..	b. { 879 } { 900 } 2018	814	b. { 1833 } { 1854 } 4858	199	88	789	1076	b. { 2909 } { 2930 } 7089
	Admitted.....	123		..	..	117	2000	190	297	41	1893	2231	277
	Died.....	4		..	..	147	37	87	2	1	84	87	2437
	Admissions to strength.....	..		..	..	2978	2457	2650	..	..	2398	2073	2437
	Deaths to strength.....	..		..	..	163	45	102	..	..	106	81	91
Deaths to admissions.....	..		..	..	56	18.5	39	..	..	44	39	39	

a. b. c. d. e. f. g. h. For the strength and dates represented by the annual averages see page 76.

From these statements it appears that, for every 1000 men, serving during the year in

	Were Admd.	And Died.
China.....	2437	91
.... Europeans	2650	102
.... Natives	2073	81
.... Hong Kong.....	2661	124
.... Europeans.....	2913	150
.... Natives	2320	92
.... Victoria.....	2214	84
.... Europeans	2094	70
.... Royal Artillery Sappers &c.....	1597	52
.... 18th Royal Irish regiment	2151	75
.... 98th regiment	c. 2256	47
.... Natives	2323	96
.... Madras Sappers Miners &c.....	1492	10
.... 42nd Madras Native Infantry.....	e. 2635	128
.... Stanley	4108	337
.... 18th Regiment.....	4316	375
.... 42nd Madras Native Infantry	f. 2437	31
.... Saiwan.....	5556	69
.... 18th Regiment.....	a. 6651	93
.... 98th Regiment.....	d. 7600	0
.... 42nd Madras Native Infantry.....	g. 2000	53
.... Chusan	b. 2097	50
.... Europeans	b. 2330	49
.... Madras Artillery.....	1857	32
.... 18th Regiment.....	1533	118
.... 98th Regiment.....	2401	46
.... Natives	1427	51
.... Madras Artillery.....	466	12
.... 42nd Madras Native Infantry.....	h. 1826	68

a. b. c. d. e. f. g. h. see page 76.

The comparative salubrity of the different months and quarters of the year is here shewn

Quarters.	Europeans.				Natives.				Total.			
			Ratio per 1000 to the whole				Ratio per 1000 to the whole				Ratio per 1000 to the whole	
	Ad.	Died	Ad.	Dd.	Ad.	Died	Ad.	Dd.	Ad.	Died	Ad.	Dd.
1st. {	April	337	3	69 16	148		60		485	3	66	11
	May	427	9	88 47	134	1	55 11.24		561	10	77	36
	June	522	12	107 63	251	3	102 33.71		773	15	106	54
		1286	24	264 126	533	4	217 45		1819	28	249	101
2nd {	July ..	568	10	117 53	376	4	153 45		944	14	128	50
	August	576	16	118 84	273	10	111 112		849	26	116	93
	Sept ..	495	16	102 84	290	10	118 112		785	26	108	93
		1639	42	337 221	939	24	382 269		2578	66	351	236
3rd. {	Octr.....	539	30	111 158	202	8	82 90		741	38	101	136
	Novr.....	406	35	85 184	196	10	80 112		602	45	82	161
	Decr	391	30	80 158	185	16	76 180		576	46	79	165
		1336	95	276 500	583	34	238 382		1919	129	262	462
4th. {	Jany	238	12	49 63	201	12	82 135		439	24	60	86
	Febry	177	8	36 42	105	9	43 101		282	17	39	61
	March	188	9	39 47	89	6	36 67		277	15	38	54
		603	29	124 152	395	27	161 303		998	56	137	201
Total.....	4858	190			2450	89			7308	279		
Monthly average.....	405	15.83	83	83	204	7.7	83	83	609	23.4	83	83

Of every 1000 admissions, therefore, 386 occurred in the first and last, and 613 in the second and third quarters; and of every 1000 deaths, 302 in the first and last, and 698 in the second and third.

Of the 279 fatal cases 9 had been admitted previously to the 1st April 1845. Of the remaining 270

29	} were admit- ted in the	{	1st	Quarter i. e.	7 in April, 11 May, 11 June.
93			2nd	.....	... 23 July, 32 August, 38 September.
121			3rd 47 October, 41 November, 33 December.
26			4th 17 January, 5 February, 4 March.

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Of 168 admitted during the year and left sick in hospital 31st March 1846, 16 died subsequently to that date, making 286 *deaths* out of the number admitted. Two of the 16 had been admitted in August, 1 in October, 2 in December, 3 in January, 5 in February and 2 in March, which admissions increase the above Nos. to 95 in the 2nd, 124 in the 3rd, and 36 in the 4th quarter.

An interesting unpublished paper "On the sickness among the Troops in the Island of Hong Kong, from the month of July 1841 to the end of the year 1844," drawn up by Captain Bruce of H. M.'s 18th regiment, late Assistant Adjutant General in China, gives the average daily sick, the average monthly strength and monthly number of fatal cases of the European and Native Troops, serving there during the period it embraces, and enables me to institute the following comparisons.

In the year ending 31st March

Of Europeans.						Of Natives.				
The average strength was.	Average daily sick.	Sick to strength per 1000.	Deaths.	Deaths. strength per 1000.	The average strength was	Average daily sick.	Average Sick to strength per 1000.	Deaths.	Deaths. strength to	strength per 1000
1843 .. 751	188	250	214	285	536	83	155	83	159	
1844 .. 1029	215	209	343	333	552	87	157	63	114	
1845 .. 929	133	143	193	207	653	62	95	153	235	
1846 .. 944	136	144	138	146	978	82	83	76	78	

In the broken periods making together a fifth year, i. e. 8 months from 1st August 1841 to 31st March 1842, and 4 months from 1st April to 31st July 1845

8 m...	852	110	129	28	33	542	145	267	70	129
4 m...	869	121	138	12	138	691	64	97	11	16

For the whole five years, or from 1st August 1841 to 31st July 1846

Of Europeans.						Of Natives.				
	The average strength was	Average daily sick.	Sick to strength per 1000.	Monthly average deaths.	Monthly deaths to strength per 1000.	The average strength was	Average daily sick.	Sick to strength per 1000.	Monthly average deaths.	Monthly deaths to strength per 1000.
In April.	863	104	120	4.75	5.54	625	45	72	2.25	3.6
May....	915	141	154	7.4	8.09	698	51	73	2.8	40.1
June....	881	171	194	12.4	14.07	704	55	78	3.8	5.4
July....	860	189	220	24.8	28.33	750	73	97	7.6	10.13
Aug....	801	202	252	25.8	32.21	713	145	203	17.4	25.54
Sept....	794	191	254	20.8	26.19	718	183	255	12.5	17.39
Octr....	772	180	233	23	29.79	649	96	148	15.4	23.74
Novr....	1001	126	126	27.5	27.5	544	80.4	148	7	12.87
Decr....	1029	197	191	20.2	19.63	606	99.6	164	6.2	10.23
Jany....	955	139	146	13	13.61	637	79	124	9.2	14.44
Feby....	1007	105	104	7.2	7.15	607	68	112	4.8	7.91
Mar....	997	102	102	4.4	4.41	585	48	82	3.2	5.47
Monthly average.	889	154	172	15.67	17.62	653	85	130	7.63	10.15

Of 7308 admissions, being 4,858 in Europeans, 2,450 in Natives, were returned under,

	In all.	In Europeans.	i. e. per 1000 of the whole admissions.		In Natives.	i. e. per 1000 of the whole admissions.
Fevers.....	3000	2070	424	.....	930	379
Bowel Complaints.....	1479	1023	211	.....	456	186
Ulcers and Abscesses.....	542	333	69	.....	209	85
Venereal Diseases.....	426	358	74	.....	68	28
Cutaneous.....	420	40	8	.....	380	155
Pulmonic.....	332	262	54	.....	70	29
Ophthalmia.....	265	248	51	.....	17	7
Wounds and Injuries.....	261	261	33	.....	100	4
Cerebral Diseases.....	42	34	7	.....	8	3
Dropsical.....	38	21	4	.....	17	8
Hepatic.....	34	33	7	.....	1	4
Punitus.....	14	14	3	.....	0	..
Other Diseases.....	180	104	21	.....	76	31
Rheumatism.....	275	157	32	.....	118	48
Total.....	7308	4858			2450	

This comparison shews that Europeans suffered in a greater proportion, from disease generally, and from Fevers, Bowel, Pulmonic, Cerebral and Venereal complaints; Natives from Rheumatism, Cutaneous diseases, Ulcers and Abscesses; and that, of 279 fatal cases 190 or 102 per 1000 of the strength, occurred in Europeans, and 98 or 73 per 1000 only of the strength in Natives.

Of the fatal cases were returned under

	In all.	In Euro- peans.	i. e. per 1000 of the whole deaths.	In Na- tives.	i. e. per 1000 of the whole deaths.
Bowel Complaints.....	126	38	463	38	427
Fevers	91	68	358	23	258
Pulmonic Diseases.....	26	15	79	11	124
Cerebral	10	7	37	3	34
Dropsical	6	3	16	3	34
Hepatic	4	4	21	0	0
Rheumatic	4	1	5	3	34
Atrophia	4	2	0	4	47
Ulcers and Abscesses.....	3	0	11	1	11
Erysipelas, Gun shot wounds, 1 each.....	2	2	..	0	..
Carditis, Splenitis and Stricture, 1 each .	3	0	..	8	..
Total.....	279	190		89	

In both Europeans and Natives, Bowel complaints stand first, Fevers second, and Pulmonic complaints third, in the list of fatal diseases ; at the same time that the proportion of deaths, from Bowel complaints and Fevers, was considerably greater in Europeans, and from Pulmonic complaints, in Natives.

<i>In Europeans.</i>			<i>In Natives.</i>			
Cerebral Diseases .	} take the	1st	Atrophy the	4th	} place as causes of death.	
Hepatic		2nd	Dropsy and Rheumatic	5th		
Dropsy		3rd	Cerebral Diseases.....	6th		
In both Ulcers and Abscesses.....				7th		

The Admissions and Deaths from different classes of diseases, in every Corps, are given in this Table.

Corps.	Royal Arty. Sap. & Min. Depl.		Madras Arty. Europeans.		18th Royal Irish.		98th Regt.		TOTAL EUROPEANS.		Madras Arty. Natives.		Madras Sap. and Min. Gun Lascars.		42nd Head Quarters.		42nd Detach. ment.		TOTAL NATIVES		GRAND TOTAL	
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Head Quarters stations average strength.	Victoria 77		Chusan 63		Hong Kong 900		Chusan 814		1854		Chusan 88		Victoria 199		Hong Kong 688		Chusan 248		1223		3077	
Classes of diseases.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Fevers.....	34	1	31	65	1310	65	695	2	2070	68	12	..	105	..	680	16	133	7	930	23	3000	91
Diseases of the { Bowels	20	1	45	61	420	61	538	25	1023	88	7	..	27	..	378	36	44	2	456	38	1479	126
	6	..	2	8	113	8	141	7	262	15	1	1	11	..	29	8	29	2	70	11	332	26
	5	1	3	5	19	5	7	1	34	7	..	..	3	1	4	2	1	..	8	3	42	10
	..	..	4	3	17	3	12	..	33	4	..	..	..	..	1	..	..	..	1	..	34	4
Rheumatic diseases	9	..	..	2	20	2	56	..	157	1	7	..	34	..	49	..	28	1	118	..	275	4
Dropsies .....	..	..	..	..	20	..	1	1	21	3	..	..	2	..	15	2	..	..	17	3	38	6
Ophthalmic diseases.....	6	..	1	..	220	..	21	..	248	..	..	..	2	..	15	..	..	..	17	..	265	..
Ulcers and Abscesses.....	13	1	10	..	119	..	191	1	333	2	4	..	20	..	136	..	49	1	209	..	542	..
Veneral diseases.....	10	..	11	116	116	13	221	..	358	..	2	..	30	..	26	1	10	..	68	1	426	1
Cutaneous diseases.....	..	..	1	13	13	1	26	..	40	1	3	..	5	..	226	..	146	..	380	..	420	1
Wounds and Injuries.....	10	..	5	91	91	1	55	..	161	1	2	..	50	..	38	..	10	..	100	..	261	1
Punitus .....	..	..	..	5	5	..	9	..	14	..	..	..	..	..	..	..	..	..	..	..	14	..
Other diseases*.....	10	..	4	63	63	..	27	..	104	..	3	..	8	..	51	5	14	1	76	6	180	6
Total.....	123	4	117	22618	147	2000	37	4858	190		41	1	297	2	1648	72	464	14	2450	39	7308	279

* For the specific diseases referred to this head and to the different classes, see Abstract of the sick Returns annexed.

Here are calculated the Ratio of Admissions and Deaths, from the principal classes of Diseases, to the strength, total admissions, and total deaths, as well as the Ratio of deaths to admissions, in every Corps.

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CORPS.	Royal Arty. & Civil Ord.		Madras Arty. Europeans.		H. M.'s 18th Regt.		H. M.'s 98th Regt.		TOTAL EUROPEANS.		Madras Arty. Natives.		Madras Zap. and Min. Gun and China Lascars.		42d Hd. Qrs. Hong Kong.		42d Detachment Chusan.		TOTAL NATIVES.		GRAND TOTAL.		
	77		63		900		814		1854		88		199		688		248		1223		3077		
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Admitted.	Died.	
Principal Classes of Diseases.	Average strength.																						
	Fever																						
	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Bowels																						
	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Lungs																						
	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Brain																						
	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Liver																						
Diseases of the	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Dropsies																						
	Ratio per 1000 { to strength. to total Admitted and deaths Deaths to admissions }																						
	Principal Classes.																						
	All other diseases.																						
	Total																						

The following fatal cases from diseases, not among the principal classes, are returned, in this Table, under "All other Diseases." 1 of Carditis In the 42nd Regt. all at 3 Acute Rheumatism 1 in the 18th, and 1 in the 42nd Regt. Victoria, 1 in the 42nd detachment Chusan. 1 Splenitis of the cases of Atrophy 1 Stricture Urethre at Chusan. 1 Chronic Rheumatism in the 42nd. 1 Erysipelas 18th at Stanley. 16 in all.

In this table are given the average strength, average daily sick, admissions and deaths, from different classes of diseases, with the ratio of admissions to strength, deaths to strength and admissions, and average sick to strength, at every station occupied by the 18th Royal Irish Regiment, during the year.

STATIONS.	Chusan.		Victoria.		Stanley.		Saiwan.		TOTAL.	
Average strength	30		549		256		43		878	
Average daily sick.....	52		55		46		13*		900	
	3								117	
Classes of Diseases.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Fevers.....	23	1	342	9	747	53	193	1	1310	64
Diseases of the { Bowels.....	1	1	243	27	133	30	43	2	420	60
{ Lungs	1	..	64	..	36	6	12	..	113	6
{ Brain.....	..	..	13	1	6	4	..	..	19	5
{ Liver.....	..	..	16	3	1	..	..	..	17	3
Rheumatism.....	1	..	43	..	36	..	12	1	92	1
Dropsies .....	..	..	12	1	3	1	..	..	20	2
Ophthalmia	2	..	173	..	39	..	6	..	220	..
Ulcers and Abscesses	6	..	64	..	43	..	6	..	119	..
Venereal Diseases	9	..	87	..	17	..	3	..	116	..
Cutaneous diseases .....	..	..	9	..	4	1	..	..	13	1
Wounds and Injuries.....	2	..	57	..	27	1	5	..	91	1
Punitus .....	..	..	4	..	1	..	..	..	5	..
Other Diseases	1	..	54	..	7	..	1	..	63	..
Total.....	46	2	1181	41	1105	96	286	4	2618	147
Ratio per 1000 of { Admissions & deaths } to strength	1533	118	2151	75	4316	375	6651	93	2978	163
Deaths to admissions..			35		87		14		56	
Average sick to strength	100		100		180		302		123	

b. see page 76.

The 18th detachment at Stanley consisted originally of, 129 men, comprising 124 of 131 recruits, who had arrived from England, in charge of Captain Payne, in the Java transport, on the 21st December 1844, and been removed from Saiwan, their first station, on the 10th April 1845.

293 men, forming the left wing of the regiment, which arrived from Chusan on the 14th May, and

54 Convalescents, sent in small parties, from Victoria, for change of air, betwixt May and July.

On the 29th May, 46 of the Light Company, and, on the 22nd June, 68 of No. 5 Company, were detached from Stanley to Saiwan. By the end of September, the greater number of the convalescents,

with exception of some who had died, were again at duty in Victoria. On the 10th September, No. 3. Company, 52 strong, which had suffered much from Fever at Stanley, was relieved by No. 7 Company, 60 strong, from Victoria.

Of the 18th detachment at Stanley, the monthly, quarterly and annual average strength, admissions and deaths, with the numbers for Fevers and Bowel complaints in separate columns, are here given.

Months.	Average strength.	Total.		For Fevers.		For Bowel complts.	
		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
April.....	<i>a.</i> 86	27	..	20	..	..	..
May	410	100	3	37	1	14	2
June	341	121	2	68	1	13	..
1st Quarter	279	248	5	125	2	27	2
July	322	113	6	84	3	9	3
August.....	305	200	11	176	6	11	4
September.....	286	170	9	131	5	13	3
2nd Quarter.....	304	483	26	391	14	33	10
October.....	308	157	14	119	8	26	4
November.....	310	106	23	61	19	25	2
December.....	308	74	16	42	7	16	4
3rd Quarter	309	337	53	222	33	67	10
January	150	12	9	3	3	4	5
February	148	10	3	5	1	..	2
March	142	5	..	1	..	2	..
4th Quarter	149	27	<i>b.</i> 12	9	4	6	7
Whole year.....	256	1095	96	747	53	133	30

a. The strength was 129 (from 11th to 30th April) \times 20 days = 2,580 \div 30 = 86.

b. One case only terminated fatally at Stanley, during the last quarter; eleven other cases, contracted at Stanley, are here included, though the fatal terminations occurred in H. M.'s Hospital ship the Minden, Victoria harbour, to which the patients had been transferred for change of air.

It thus appears that of 96 fatal cases, including 11 transferred from Stanley, either direct, or through the Sir Robert Sale, 53 died of Fevers, and 30 of Bowel complaints. Of the remaining 13, six died of Pulmonic, 4 of Cerebral diseases, and 1 respectively of Dropsy, Erysipelas and Gun shot wound.—In addition to the 96, that died in hospital, one man committed suicide, and 7 women and 3 children died, all betwixt the 9th August and 3rd November; two of the former and two of the latter, from Remittent fever, three of the former and one of the latter, from Diarrhœa, one woman from Pulmonary consumption, and one from Atrophy, consequent on lactation.

On my first visit to Stanley, 13th August 1845, three weeks after my arrival in China, the detachment was composed of 117 men of Captain Payne's draft, and 195 older soldiers, 312 in all; and of the first 53, or 45 per cent, of the second 50, or about $25\frac{1}{2}$ per cent, making together 103, were in hospital.

	19 or under	20 to 24	25 to 29	30 to 34	35 to 39	40 and upwards	Total.
The strength at different ages of the whole detachment was	6	189	67	18	12	17	309
Sick in hospital.....	5	72	21	2	2	1	103
Cases of Fever.....	5	66	15	..	1	1	88
Ratio { Sick to strength	83	38	31	11	17	1.3	33
per cent { Fever cases } of { to strength.. }	83	35	33		83	1.8	28

At another inspection visit, on the 20th November, I found that, from an average strength, little exceeding 300 men, 967 cases, comprising 676 of Fever, had been admitted, and 56 died, since the 10th April, or in the short space of 7 months and 10 days. Of these deaths 32 had been caused by Fever, 14 by Diarrhœa and Dysentery, 3 by Cholera Morbus, 2 by Phthisis Pulmonalis, and 1 respectively by Erysipelas, Palsy, Apoplexy and Phrenitis, the last resulting from injury of the head, in a fall down stairs. Thirty-one of the fatal cases had belonged to Captain Payne's draft, 131 strong on its arrival from England, 11 months before, but now reduced by these and two other deaths in Victoria, to 98 men, of whom 8 had been transferred to Head Quarters for duty, and 90 remained, imperfectly drilled, and mostly sick or convalescent, at Stanley. These men could be distinguished in the ranks, by their weakly frames and sickly complexions, though many others of the detachment were, at the time, in greatly reduced health. In addition to the 56 deaths in hospital, one man had committed suicide and 6 women and 3 children had fallen victims to the climate of Stanley, all since the 9th of August. The strength was 9 officers, 377 Non-commissioned officers and privates, 15 women and 16 children; the number of men in hospital 77 and the number convalescent 33, making 110 unfit for duty.

Of

90 } 58 } 229 }	who had arrived ...	{ in Decr. 1844. in Octr. 1845. at earlier dates. }	{ 39 or 433 10 or 172 28 or 122 }	{ per 1000 were sick in hos- pital.
377			77 204	

There being, no unoccupied quarters for troops, in any part of the island, I recommended that a large proportion of this unfortunate detachment, comprising all of Captain Payne's draft, in a condition

to be put on board ship, should be sent, for a month, to sea, as soon as a vessel fit for their accommodation could be engaged ; and that the remaining part of the detachment should be relieved, by men from Victoria, at the earliest convenient opportunity, giving precedence in change of station to companies, that had been longest absent from Head quarters. Though this recommendation was at once adopted, by the Honorable the Major General Commanding, a suitable vessel could not be engaged and made ready, before the 19th of December.

On that day 102 men, selected chiefly from the Stanley detachment, but comprising 30 from the sick and convalescent lists of the regiment in Victoria, with one Captain, two Subalterns and one Assistant Surgeon all of the same corps, were carried by a Government steamer, on board the freight ship *Sir Robert Sale*, shortly before engaged, and just fitted up, for the invalids of the season, about to be sent home, and then at anchor in a sheltered part of Victoria harbour, about two miles from shore. The advance of the winter season, and apprehensions of a rough monsoon, had, on reflection, suggested this locality as preferable, for feeble and sickly convalescents, to the risque of uncertain and boisterous weather at sea, and it possessed the two important advantages of enabling the Commissariat department, to supply the party embarked with fresh provisions daily, and the Medical Officer in charge to transfer to Her Majesty's Hospital ship, the *Minden*, any serious cases of illness that might occur among them. In addition to their ordinary rations, the men were daily supplied with vegetables from shore and with bottled beer, at a moderate price from the Regimental Canteen, though no individual was allowed to drink more than two tumblers full of that beverage, in twenty-four hours.

Eighteen of the party required medical treatment on embarkation, and, from that date to the 8th January, when the immediate prospect of the arrival from Chusan of the invalids of Her Majesty's 98th Regiment, made it incumbent on the authorities to provide for the convalescents quarters on shore, 27 more reported themselves sick, making 45 in all ; but six of these, having been under hospital treatment at the time of embarkation, 39 only are to be regarded as new admissions, in the *Sir Robert Sale*, 12 for Diarrhœa, 3 Dysentery, 8 Intermitting fever, 5 Catarrh, 3 Anasarca, 2 Ophthalmia, 1 Hæmorrhoids, 1 Hernia humoralis and 1 Ulcer.—One floor of Murray Barracks, fit for the reception of 95 men, being just then completed, the detachment disembarked, on the day mentioned, and found accommodation in Victoria.

From their arrival in May to the end of June, the whole of the Head quarter division of the 42nd Regiment M. N. I., nearly 800 strong, occupied temporary cajan barracks, lined and floored with planks, and provided with chunam paved verandahs, at different heights, and with different aspects, behind Murray Barracks, on the sides of an irregular valley, which opens on the harbour to the south-east. The senior Medical officer being of opinion that these barracks were much too crowded, 100 men were withdrawn from them on the 2nd July to Gillespie Barracks, on the water's edge, near the eastern end of the town, and placed on a large upper floor, which had been formerly used as a European hospital, leaving 688 men, of which a large proportion fell sick, and, on the 28th July, 20 men required to be transferred for want of room from the 42nd to the Native Ordnance hospital, on the neighbouring hill.

The quantity of animal food, entering into the ration of the Native Troops, being 4 ounces of goat mutton on three days in the week, and 2 ounces of salt fish, on the remaining four, a Committee of Officers was ordered, in the middle of September, to report on the desirability or otherwise of increasing the quantity of fresh meat issued to them. The Committee found that, since its arrival in May 784 cases, comprising nearly 600 individuals, of the 42nd regiment, had been admitted into hospital—that the whole of the men were in weakly condition—that the comparative cheapness of animal food in India had enabled these men to purchase a more liberal supply than that which enters into the Native ration, and that the health and efficiency of the Natives, in the Ordnance corps, who could afford by their working pay, to procure for themselves extra articles of food, were greatly superior to those of the 42nd regiment. On these grounds the Committee recommended the salt fish to be discontinued and every Native soldier, serving in Hong Kong, to be allowed four ounces of goat mutton, on five days, in the week. The increased proportion of goat mutton was granted, as a temporary arrangement, pending a reference to the Madras Government, since “the very large family remittances, which the sepoys of the 42nd regiment had been permitted to assign, from their pay before embarkation, had deprived them of the usual means of supplying themselves with many comforts.” The salt fish continued to be issued, though twice only instead of four times a week; the experienced officer at the head of the Commissariat Department having satisfied himself and the Commander of the Forces, that no dependence could be placed on the regular supply of a sufficient quantity of fresh fish to ration the Native troops in the Garrison, on the scale recommended by the Committee.

From the 1st July to the end of the hot season, the Major General Commanding sanctioned the employment of eight extra coolies, as punkah pullers, in the 18th hospital, Victoria, and from the 1st August, the daily issue of 20 pounds of ice to the same establishment, and of such quantities, for the sick of other corps, as might be, from time to time, recommended by the Medical Officers in charge of them. Twenty five pounds were also sent daily from Victoria, for the sick at Stanley, the loss in transmission by coolies being estimated at one fifth of the whole. Three hundred tons of ice, imported from the United States, in the 3rd week of July, and kept in an Ice house, previously built by subscription, were sufficient for the consumption of Government and of the public, from the date of its arrival to the end of the hot season, the price to non-subscribers being 5 cents or two pence half penny a pound.

ABSTRACT of the Annual sick Returns of Her Majesty's and the Honorable East India Company Troops, serving in China, from 1st April 1845 to 31st March, 1846.

CORPS.	Strength.....	Royal Artillery Sap. and Min. Civil Ord. 77		18th Royl. I. Regt. 900		98th Regt. 814		Madras Artillery. 63		Total European Corps. 1,554		Madras Sap. Min. and Gun Lascars. 199		42d M. N. I. Victoria 688		42d M. N. I. Chusan 248		Madras Artillery. 88		Total Native Corps. 1,223		Grand Total 3,077	
		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Fever	Fevers Int.....	30	1	1,019	24	667	1	31	..	1,747	25	81	..	600	11	104	5	..	16	797	16	2,544	41
	.. Remit.....	1	..	225	40	6	..	..	..	232	41	..	..	18	3	3	2	..	5	21	5	253	46
	.. Cont. Com:	3	..	66	1	22	1	..	..	91	2	..	..	8	..	..	..	..	2	8	2	99	4
	Ephemeral. ....	..	..	..	..	..	..	..	..	..	..	24	..	54	..	26	..	..	..	104	..	104	..
	Total.....	34	1	1,310	65	695	2	31	..	2,070	68	105	..	680	16	133	7	12	33	930	33	3,000	91
Pulmonic Complt.	Pneumonia	1	..	6	..	15	1	..	..	22	1	..	..	2	..	8	..	..	2	10	2	32	3
	Pleuritis.....	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
	Bronchitis .....	..	..	2	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	3	..
	Hæmoptysis .....	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..
	Phthisis	3	..	74	3	10	6	..	..	12	9	..	..	1	..	..	..	..	..	1	..	13	9
Hepatic Complt.	Catarrhus Ac:	2	..	26	3	109	..	2	..	188	3	10	..	25	6	19	2	1	9	55	9	243	11
	.. Chron .....	..	..	..	..	5	..	..	..	33	..	..	..	..	..	2	..	..	..	2	..	33	3
	Pertussis.....	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	2	..	2	..
	Dyspnea .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
	Total.....	6	..	113	8	141	7	2	..	262	15	11	..	29	8	29	2	1	11	70	11	332	26
Bowel Complt.	Hepatitis Ac: .....	..	..	11	1	10	..	3	1	24	2	..	..	..	..	..	..	..	..	..	..	24	2
	.. Chron: .....	..	..	5	2	1	..	..	..	6	2	..	..	..	..	..	..	..	..	..	..	6	2
	Icterus .....	..	..	1	..	1	..	1	..	3	..	..	..	1	..	..	..	..	..	1	..	4	..
	Total.....	..	..	17	3	12	..	4	1	33	4	..	..	1	..	..	..	..	..	1	..	34	4
	Peritonitis.....	..	..	1	1	1	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	2	1
Bowel Complt.	Gastritis.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
	Enteritis.....	1	..	..	..	6	..	..	..	7	..	..	..	1	..	..	..	..	..	..	..	1	..
	Hæmatemesis	6	1	104	21	23	..	4	..	137	1	1	..	164	16	..	..	..	..	1	..	310	39
	Dysent: Ac:	2	1	19	6	4	..	13	..	38	7	9	..	5	2	..	..	..	16	6	2	44	9
	.. Chron:	8	..	256	30	437	14	21	1	722	45	10	..	196	18	41	2	4	20	251	20	973	65
Bowel Complt.	Diarrhœa .....	..	..	3	3	28	9	..	..	31	12	..	..	..	..	..	8	..	..	..	..	31	13
	Cholera .....	..	..	13	..	7	..	3	..	23	..	3	..	..	..	..	..	..	..	10	..	33	..
	Obstipatio	1	..	10	..	25	..	1	..	37	..	1	..	7	..	..	..	..	..	10	..	47	..
	Colica	1	..	14	..	7	..	3	..	25	..	2	..	2	..	..	..	..	..	4	..	20	..
	Dyspepsia
	Total.....	20	1	420	61	538	25	45	1	1,023	88	27	..	378	36	44	2	7	33	456	33	1,479	126

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CORPS.	Royal Artillery Sap. and Min. Civil Ord.		18th Royl. I. Regt.		98th Regt.		Madras Artillery.		Total European Corps.		Madras Sap. Min. and Gun Lasars.		42d Ma- dras N. I. Victoria.		42d Ma- dras N. I. Chusan.		Madras Artillery.		Total Native Corps.		Grand Total.	
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Strength.....	77		900		814		63		1,854		199		688		248		88		1,223		3,077	
DISEASES.																						
Cerebral Complts.	1	1	1	1	1	1	2	1	3	1	2	1	1	1	1	1	1	1	3	1	3	1
	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	1	2	2	3	1	1	2	17	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	1	12	2	2	1	1	2	17	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	2	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1
	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	5	1	19	5	7	1	3	7	34	7	3	1	4	2	1	1	1	1	8	3	42	10
Dropsies.	1	1	13	2	1	1	1	2	13	2	2	1	15	2	1	1	1	1	17	3	30	5
	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1
	1	1	5	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	1	6	1	1
Total.....	3	3	20	2	3	3	3	5	21	5	4	3	15	2	3	3	3	3	17	3	38	6
Rheumatic Complts.	1	1	51	1	50	1	1	1	102	1	1	1	40	1	13	1	1	1	54	2	156	3
	7	1	37	1	6	1	1	1	50	1	32	1	9	1	15	1	1	1	63	1	113	1
	1	1	3	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	9	1	92	1	56	1	1	1	157	1	34	1	49	2	28	1	1	1	118	3	275	4
Morbi Oculorum	6	1	220	1	21	1	1	1	248	1	2	1	515	1	1	1	1	1	17	1	265	1
	1	1	13	1	26	1	1	1	40	1	5	1	226	1	146	1	1	1	380	1	420	1
Morbi Cutis.....	6	1	75	1	86	1	2	1	169	1	1	1	8	1	1	1	1	1	3	1	172	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	13	1	119	1	191	1	10	2	333	2	20	1	136	1	49	1	4	1	209	1	542	3

II.—ON THE HEALTH OF HER MAJESTY'S AND THE HON'BLE EAST INDIA COMPANY'S TROOPS, SERVING IN CHINA, FROM 1ST APRIL 1846, TO 31ST MARCH 1847.

On the 16th April 1846, the Stanley detachment of the 18th Royal Irish regiment, previously reduced to 4 Officers, 139 men, 12 women and 18 children, was withdrawn, and replaced by a second company of the 42nd regiment M. N. I. During the year, therefore, with exception of the first 15 days, the whole of the 18th regiment was quartered in North and Murray Barracks, Victoria, and its sick, as well as those of the Royal Artillery, Sappers and Miners, treated in the new European Military Hospital, of which the two upper floors, and two wards in the left detached wing originally constructed for the use of sick women and children, were required for their accommodation.

Chusan having been restored to the Chinese, Her Majesty's 98th regiment embarked for Calcutta, on the 22nd July, in the freight ships Lord Hungerford, Charles Grant, and John Bull, which had been engaged and fitted up in Hong Kong, for the accommodation of 892 Europeans, including women and children, the strength of the Non-commissioned officers and privates being 808.—This regiment had been remarkably healthy, during the preceding quarter, and left China with eleven men only on the sick list.

On the arlop deck of the Charles Grant were accommodatd, also, a considerable number of Native followers, returning to India from Hong Kong and Chusan.

The Madras Artillery arrived at Stanley from Chusan, on the 23rd July, and with the party of Madras Sappers and Miners, and China Gun Lascars, that had been stationed in Victoria, sailed for Madras, in the freight ship General Wood, 885 tons, on the 7th October.—The number embarked was 65 Europeans of all ranks, and 350 Natives, including camp followers; of whom forty were placed on the arlop, all the rest, European and Native, on the main deck.

To the 42nd detachment at Stanley, 185 strong, were added, on the 22nd July, 226 men of the same corps from Chusan, increasing the strength to 411.—On the 1st August this number was reduced to 359, by the departure for Victoria of two companies of 159 men, and the arrival, in their place, of one company of 107; and on the 28th October, 72 more were withdrawn to Victoria, 287 only being left at

Stanley. The detachment of the 42nd at Saiwan, varying in strength from 83 to 90 men, was three times relieved from Victoria, during the year, namely, on the 15th May, 15th July and 18th September.

On the 26th December, one second corporal and 17 privates of the Royal Sappers and Minners arrived from England, in the ship "Stag."

Of the troops serving in China from 1st April 1846 to 31st March 1847

	Euros: Natives.		Total.	
The average strength was.....	1146	1077	2223	
Number sick 1st April 1846	115	64	178	
Admissions.....	2238	2393	4631	
i. e. per 1000 of the strength.....	1953	2222	2083	
Deaths.....	46	75	121	
i. e. per 1000 of the strength.....	40	70	45	
Admissions.....	20	31	26	
Invalids sent home.....	68	0	0	
i. e. per 1000 of the strength.....	59	0	0	

	The average strength for the period was	Average annual strength	Admis- sions	Deaths	Ratio per 1000 of Admis- sions to strength	Deaths to strength	Deaths Admis- sions
Of the Royal Arty. Sap.Min. and Ord. Victoria.....	64	74	133	6	1797	81	45
Madras Artillery		33 a.	80	3	2424	91	37
Europ. 1st April to 6th Oct. 189 d.							
H. M.'s 18th Regt. Victoria.....		775	1566	30	2008	33	19
H. M.'s 98th Regt. Chusan, 1st April to 21st July 112 d.	308	264 b.	459	7	1733	27	15
Total Europeans...		1146	2238	46	1953	40	20
Madras Artillery Native, 1st April to 5th Oct 189 d.	100	52 c.	74	6	1423	115	81
Madras Sap. Min. and China Gun Lascars Victoria, 1st April to 5th Octr. 189 d.	201	104 d.	92	0	885	0	0
42nd regt. M.N.I..		921	2227	69	2418	75	31
Total Natives.....		1077	2393	75	2222	70	31
Grand Total.....		2223	4631	121	2083	54	26

a. 139 × 64 = 12096 ÷ 365 = 33.
b. 112 × 308 = 90496 ÷ 365 = 264.
c. 189 × 100 = 18900 ÷ 365 = 54.
d. 189 × 201 = 37989 ÷ 364 = 105.

This Table exhibits of every Corps at every Station in the Command, the Annual Average Strength, Admissions, and Deaths, during the year, with the Ratio per 1000 of the Admissions and Deaths to the Average Strength, and of the Deaths to the Admissions.

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EUROPEANS.										NATIVES.		
STATIONS.	Royal Artillery and Civil Sap. Min. Ord.	Madras Euro-peans	Artillery	II. M.'s 18th Rl.	I. Regt.	II. M.'s 98th Rl.	Total Euro-peans.	Madras Native Artillery.	Madras Sap. Min. & China Gun Las-cars.	42d Rl. Madras N. I.	Total. Natives.	Grand Total.
Victoria...	74	..	..	775	1566	..	849	..	a. 104	499	603	1452
	133	..	..	30	30	..	1699	..	92	847	989	2638
	1797	..	..	2008	38	..	2001	..	885	1697	1554	1817
	81	..	..	19	21	..	43	..	..	86	71	54
	45	..	..	..	..	..	16	b. 26	..	51	46	30
Stanley...	..	b. 16	..	..	..	..	59	67	..	260	286	302
	..	59	..	..	..	..	59	67	..	791	858	917
	..	3	..	..	..	..	3	6	..	14	20	23
	..	3687	..	..	..	..	..	2877	..	3423	3000	3036
	..	187	..	..	..	..	..	231	..	54	70	76
Hong Kong	..	51	..	..	..	..	..	90	..	13	23	25
	..	..	..	..	..	..	..	..	..	83	88	88
	..	..	..	..	..	..	..	..	..	491	491	491
	..	..	..	..	..	..	..	..	..	8	8	8
	..	..	..	..	..	..	..	..	..	5380	..	..
Zaiwan...	..	..	..	..	..	..	..	..	..	90	..	..
	..	..	..	..	..	..	..	..	..	16	..	..
	..	..	..	775	..	..	865	26	104	847	977	1842
	74	16	..	1566	..	..	1788	67	92	2129	2288	4046
	133	59	..	30	..	..	39	6	..	65	71	110
Total.....	6	3	..	..	..	..	2025	..	..	2514	2340	2196
	..	..	..	..	..	..	45	..	..	77	73	60
	..	..	..	..	..	..	22	..	..	30	31	27
	..	..	..	..	..	264	281	..	..	74	100	381
	..	b. 17	..	..	..	459	480	b. 26	..	98	105	585
Chusan.....	..	21	..	..	..	7	7	7	..	4	4	11
	..	..	..	..	..	1838	1708	269	..	1324	1050	1535
	..	1235	..	..	..	27	25	..	..	54	40	20
	..	..	..	..	..	15	15	..	..	41	38	19
	..	..	..	775	..	264	1146	52	..	921	1077	2223
China.....	74	33	..	1566	..	459	2338	74	104	2227	2393	4631
	133	80	..	30	..	7	46	6	..	60	75	121
	6	3	..	..	..	..	1953	1423	..	2418	2221	2083
	..	2424	..	..	..	..	40	115	..	75	70	55
	..	90	..	..	..	..	20	81	..	31	31	26

From this, and a corresponding Table in my last Contribution, it appears that for every thousand men serving during the year,

	1845-6		1846-7		Difference* in	
	Were Admd.	And Died.	Were Admd.	And Died.	Adms.	Deaths
China	2437	91	2083	55	354	36
.... Europeans	2650	102	1953	40	697	62
.... Natives	2073	81	2222	70	851	11
.... Hong Kong.....	2661	124	2196	60	465	64
.... Europeans.....	2913	150	2025	45	838	105
.... Natives	2320	92	2340	73	(20)	19
.... Victoria	2214	81	1817	54	397	30
.... Europeans	2094	70	2001	43	93	27
.... Rl. Arty. Sap..	1597	52	1797	81	(200)	(29)
.... 18th Rl. I. Regt.	2151	75	2008	38	143	37
.... 98th Regt.....	2256	47	..	..	..	..
.... Natives.....	2323	96	1554	71	769	25
.... Madras S. M..	1492	10	385	..	607	10
.... 42nd M. N. I..	2635	128	1697	86	938	42
.... Stanley	4108	337	3036	76	1072	261
.... 18th Regt.	4316	375	..	..	..	..
.... M. A. E.....	..	..	3687	187	..	..
.... 42nd M. N. I..	2437	31	3423	54	(986)	(23)
.... M. Nat. Arty..	..	..	2577	231	..	..
.... Saiwan.....	5556	69	5580	90	(24)	(21)
.... 18th Regt.....	6651	93	..	..	..	..
.... 98th Regt.....	7600	0	..	..	..	..
.... 42nd M. N. I..	2000	53	5580	90	(3580)	(37)
.... Chusan	2097	50	1535	29	562	21
.... Europeans	2330	49	1708	25	622	24
.... Madras Artillery.....	1857	32	1235	..	622	32
.... 18th Regiment.....	1533	118	..	..	..	..
.... 98th Regiment.....	2401	46	1388	27	563	19
.... Natives	1427	51	1050	40	377	11
.... Madras Artillery.....	466	11	269	..	187	11
.... 42nd M. N. I.....	1826	68	1324	54	502	14

* The numbers in this column indicate the superior salubrity of 1846-7, excepting those within parentheses which indicate the superior salubrity of 1845-6.

These comparisons exhibit a wonderful improvement, on all former years, in the health of the European troops, serving in China, and in the salubrity of every Military station, excepting Saiwan ; while they also shew that of the Native troops the proportion of admissions was one-tenth greater, and of deaths very little smaller, than that of the preceding years.

In 1845-6 { The ratio of admission was 620 } per 1,000 greater } In Europeans
 { deaths..... 20 }
1846-7 { admissions..... 269 } per 1,000 less. } than Natives.
 { deaths..... 30 }

During the year ending 31st March

		The average strength was	Admissions.	Deaths.	Ratio per 1,000 of.		
					Admission to strength.	Deaths to strength.	Deaths to Admission.
1845	In European.	1868	5887	241	3150	128	41
1846		1854	4858	190	2620	102	39
1847		1146	2238	46	1953	40	20
1846	In Natives.	1223	2450	89	2000	73	30
1847		1097	2390	75	2222	70	31

Varied in

In	European Corps.		Native Corps.		
	From	To	From	To	
1845-6 the admissions	1697	2910	466	2395	} per 1000 of the strength.
Deaths	32	163	10	105	
1846-7 the admissions	1235	3687	269	5580	
Deaths	27	81	..	231	

In both years the greatest proportion of sick occurred at Saiwan ; in the first, among 65 men of the 98th Regiment, recently from England, stationed there from 18th November to 9th January only ; in the second, among 88 men of the 42d Regiment M. N. I. stationed there the whole year, but relieved from Victoria three times.

In the first year, a detachment of the 18th Royal Irish Regiment at Stanley admitted 4316, and lost 375 per 1000 of its average strength ; while the Head Quarter Division in Victoria admitted 215, and lost 75 per 1000. In the second year, the whole corps quartered in Victoria, admitted 2008, and lost 38 per 1000 only.—The 18th lost in Hong-Kong 4 and in Victoria 2 men in 1845-6, for every man they lost at these stations, in 1846-7.

In 1845-6 a detachment of the 42nd Regiment M. N. I. stationed at Stanley from 4th December to 31st March, admitted the annual rate of 2437, and lost 31 per 1000, while the Head Quarter Division in the whole year in Victoria admitted 2635, and lost 128 per 1000. In 1846-7 a detachment at Stanley, the whole year, admitted 3423, and lost 54 per 1000 ; while the Head Quarter Division in Victoria admitted 1697, and lost 86 per 1000.

Of the 18th Regiment in 1845-6 in

	The average strength was	Admissions.	i. e. per 1000	Deaths.	i. e. per 1000
Victoria	549	1181	2151	41	75
Stanley	256	1105	4316	96	375
Saiwan	43	286	6651	4	93
Hong Kong	848	2572	3032	141	166

Of the 42nd Regiment in 1846-7.

Victoria	499	347	1697	43	86
Stanley	260	791	3423	14	54
Saiwan	88	491	5580	8	90
Hong Kong	847	2129	2514	65	77

The mortality of the 18th Regiment, therefore, was 7 times greater at Stanley in 1845-6, than that of the 42nd M. N. I. in 1846-7 ;

whereas in Victoria, the 18th lost 53 per 1000 fewer men in 1845-6, and 48 per 1000 fewer in 1846-7, than the 42nd.

Here follow the numbers and proportions of admissions and deaths in European and Natives, during the different months and quarters of the year.

Quarters.	Euro-peans.				Natives.				Total.			
			Ratio per 1000 to the whole				Ratio per 1000 to the whole				Ratio per 1000 to the whole	
	Ad.	Died	Ad.	Dd.	Ad.	Died	Ad.	Dd.	Ad.	Died	Ad.	Dd.
1st. {	April	279	5	125 109	111	3	46	40	390	8	84	66
	May	301	4	134 87	174	4	73	35	475	8	103	66
	June	322	4	144 87	190	3	80	40	512	7	111	57
		902	13	403 232	475	10	198	133	1377	23	291	190
2nd {	July ..	327	6	141 13	259	5	108	66	586	11	127	91
	August	183	7	82 15	285	7	119	93	468	14	101	116
	September	174	4	78 87	323	13	135	173	497	17	107	149
		684	17	306 370	867	25	362	333	1551	42	335	347
3rd. {	October	154	1	69 22	341	5	142	66	495	6	107	50
	November	130	5	58 109	253	8	106	107	383	13	83	107
	December	114	4	51 87	147	7	61	93	261	11	56	91
		398	10	171 230	741	20	309	263	1139	30	246	208
4th. {	January	116	4	52 87	108	5	45	66	224	9	48	74
	February	66	1	29 22	116	13	48	173	182	14	39	116
	March	72	1	32 22	86	2	36	26	158	3	34	24
		254	6	113 13	310	20	129	263	564	26	122	215
Total		2238	46		2393	75			4631	121		

Of

390 admitted in April.... 10 died 495 admitted in October.. 7 died.
475 May 5 383 November 13 ..
512 June 8 261 December 3 ..

13771st Quarter 23 1139 3d Quarter 23 ..

586 July 11 224 January... 10 ..
468 August.. 19 182 February. 5 ..
497 Septr.... 13 158 March ... 1 ..

1551 2d Quarter 43 5644th Quarter 16 ..

4631 whole year..... 105
Of patients admitted previously to 1st April 1846..... 16

Total 121

The comparative health of the 18th Royal Irish and the 42nd M. N. I. Regiments, at the same stations, during every quarter of two different years, as well as of the former corps, divided betwixt different stations the one year, and concentrated in Victoria the other, is shewn in these tables.

Quarters.	VICTORIA.					STANLEY.					SAIWAN.					HONG KONG.				
	Strength.	Admissions.	Adm. per 1000.	Deaths.	Deaths per 1000.	Strength.	Admissions.	Adm. per 1000.	Deaths.	Deaths per 1000.	Strength.	Admissions.	Adm. per 1000.	Deaths.	Deaths per 1000.	Strength.	Admissions.	Adm. per 1000.	Deaths.	Deaths per 1000.

18th Regiment in 1845-6.

1st ..	456	310	680	7	15	280	258	922	5	18	30	46	1200	..	..	766	614	802	12	16
2nd ..	487	299	614	8	16	304	483	1589	26	86	70	154	2200	2	28	861	936	1087	36	42
3rd ..	571	300	525	18	32	297	337	1135	53	178	46	86	1870	2	43	914	723	791	73	70
4th ..	682	272	399	8	12	147	27	384	12	82	..	..	..	..	..	844	299	354	20	24
Total Amt..	549	1181	2186	41	75	256	1105	4316	96	375	39	286	733	4	103	844	2572	3049	141	167

42nd Regiment N. I. in 1846-7.

1st ..	443	158	356	6	14	194	111	372	2	10	86	100	1163	..	..	723	369	510	8	11
2nd ..	472	239	560	13	27	316	288	911	4	13	95	182	1916	..	..	883	709	803	17	19
3rd ..	543	265	488	12	22	272	310	1140	3	11	88	166	1886	5	57	903	741	826	20	22
4th ..	533	185	347	12	21	258	82	318	5	19	83	43	518	3	36	879	310	353	20	23
Total Amt..	499	847	1697	43	86	260	791	3423	14	54	88	491	5580	8	90	847	2129	2514	65	77

18th Regiment in 1846-7.

1st ..	802	495	617	7	9											802	495	617	7	9
2nd ..	794	489	616	10	13											794	489	616	10	13
3rd ..	784	363	462	7	9											784	363	462	7	9
4th ..	720	219	304	6	8											720	219	304	6	8
Total Amt..	775	1566	2008	30	38											775	1566	2008	30	38

Of 4,631 admissions, being 2,238 in Europeans, 2,393 in Natives were returned under

	In all.	In Euro- peans.	i. e. per 1000 of the whole ad- missions.	In Na- tives.	i. e. per 1000 of the whole ad- missions.
Fevers.....	1921	522	233	1399	585
Bowel complaints	844	436	195	408	170
Venereal ... „	321	264	118	57	24
Ulcers and Abscesses.....	300	208	93	92	38
Wounds and Injuries	254	180	80	74	31
Ophthalmia.....	209	199	89	10	4
Pulmonic complaints	189	124	55	65	27
Rheumatic .. „	186	86	38	100	42
Cutaneous Diseases	165	29	13	136	57
Cerebral complaints	38	27	12	11	5
Dropsies	25	9	4	16	7
Hepatic complaints.....	21	20	9	1	4
Punitus.....	11	11	5	0	0
Other diseases	147	123	55	24	10
Total.....	4631	2238		2393	

Of 121 deaths, 46 in Europeans, 75 in Natives, were returned under

	In all.	In Euro- peans.	i. e. per 1000 of the whole deaths.	In Na- tives.	i. e. per 1000 of the whole deaths.
Bowel complaints	57	23	500	34	453
Fevers	37	7	152	30	400
Pulmonic complaints	9	5	109	4	53
Cerebral ... „	7	5	109	2	27
Rheumatic . „	4	2	43	2	27
Dropsies	3	1	22	2	27
Hepatic, Atrophy, Debilitas, Ulcers.....	4	3	22 each	1	13
Total.....	121	46		75	

Fevers and Bowel complaints together comprised

2765 or 60 } per cent of the { whole admissions.. 94 or 78 } per cent of the { whole deaths
 950 .. 43 } { Europeans..... 30 .. 65 } { European.
 1807 .. 75 } { Natives 64 .. 85 } { Natives.

In this Table are calculated the Ratio of Admissions and Deaths, from the principal classes of Diseases, to the strength, total admissions, and total deaths, as well as the Ratio of deaths to admissions.

Corps.	Royal Arty. & Civil Ord.		Madras Arty. Europeans.		H. M.'s 18th Royal Irish Regt.		H. M.'s 98th Regt.		TOTAL EUROPEANS.		Madras Arty. Natives.		Madras Sap. Min. Arty. & China Gun Lascars.		42d Hd. Qrs. Hong Kong.		42d Detachment San.		TOTAL NATIVES.		GRAND TOTAL.	
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Admitted.	Died.
Average strength.																						
Principal Classes of Diseases.																						
Fever	19	2	43	2	264	3	196	..	522	7	62	5	28	..	1270	21	39	4	1399	30	1921	37
	256	27	1303	16	342	3.9	642	..	455	6	1192	96	269	..	1499	25	527	54	1299	25	863	17
	143	333	537	666	169	100	427	..	233	152	838	833	304	..	596	323	338	1000	585	400	415	306
	105	46	46	46	1	1	13	23	81	7	34	103	21	19	..
	40	2	13	1	346	18	37	2	436	23	..	..	9	..	391	34	8	408	34	844	57
	541	27	394	30	446	23	140	8	380	20	..	..	86	..	462	40	108	379	32	379	26
	301	333	162	333	221	600	81	333	195	500	..	..	98	..	183	523	82	170	452	182	471
	50	52	52	52	..	..	54	..	53	..	..	..	..	..	7	..	..	59	..	68	..
	12	1	1	..	84	4	27	..	124	5	1	..	6	..	53	4	..	65	4	189	9	
	132	14	21	..	110	5	102	..	108	4	19	..	58	..	63	4.7	68	60	3.7	85	4	
Diseases of the	90	166	12	..	54	133	59	..	55	109	14	..	65	..	25	62	51	27	53	41	74	..
	83	83	..	..	48	..	..	..	40	..	..	..	..	..	75	..	..	61	..	48	..
	6	1	1	..	15	2	6	2	27	5	1	1	3	..	7	1	..	11	2	38	7	
	81	14	..	..	19	2.6	23	8	23	4	19	19	29	..	8	1.2	..	10	1.9	17	3
	45	166	..	..	16	66	11	333	12	109	14	166	33	..	3	16	..	5	27	8	57
	166	166	..	..	133	..	333	..	185	..	1000	..	..	..	143	..	..	11	..	184	..
	3	..	2	..	15	1	..	..	20	1	..	..	..	..	1	..	..	1	..	21	1
	41	..	63	19	19	1.3	..	..	19	9	..	..	..	..	1.2	..	..	4	..	9.4	4
	23	..	25	..	10	33	..	..	9	22	..	..	..	..	5	..	..	4	..	4.5	8
	..	..	..	..	66	..	..	..	50	..	..	..	..	..	16	..	..	10	2	25	3
Rheumatism.	..	..	..	..	9	1	..	..	9	1	..	..	..	..	19	2.4	..	15	1.9	11	1.33
	..	..	..	..	12	1.3	..	..	8	9	..	..	..	..	7	33	..	6.5	27	5	25
	..	..	..	..	6	33	..	..	4	22	..	..	..	..	15	..	..	125	..	120	..
	..	..	..	..	111	..	..	..	11	..	..	..	..	..	80	2	7	100	2	186	4
	9	..	..	..	56	..	21	2	86	2	1	..	12	..	94	2.4	95	93	1.9	84	1.8
	122	..	..	..	72	..	79	8	75	1.7	19	19	115	..	38	33	71	42	27	40	33
	68	..	..	..	36	..	46	333	83	43	14	..	13	..	25	..	..	20	..	22	..
	..	..	..	..	..	..	95	..	23	..	..	..	..	..	..	..	..	..	..	..	..
	
	89	6	59	3	789	29	287	6	1224	44	65	6	58	..	1818	64	59	2000	74	3224	118	
Principal Classes	44	..	21	..	777	1	172	1	1014	2	9	..	34	..	311	1	39	4	393	1	1407	3
	133	6	80	3	1566	30	459	7	2238	46	74	6	92	..	2129	65	98	4	2393	75	4631	121
Total.....																						

Three fatal cases, not included in the principal classes of diseases, were 1 of Atrophy in the 18th, 1 of Debility in the 98th, and 1 of Ulcer in the 42nd Rt. M. N. 1.

Here may be compared the admissions and deaths, from different classes of diseases, in the

18th Royal Irish Hospitals from 1st April 1845 to 31st March 1846. } and { 42nd M. N. I. Hospitals, from 1st April 1846 to 31st March 1847.

STATIONS.		Victoria.		Stanley.		Saiwan.		Hong Kong.	
Average strength		549		256		43		848	
Average daily sick		55		46		13		114	
Classes of Diseases.		Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Fevers.....		342	9	747	53	198	1	1287	63
Diseases of the { Bowels..... Lungs..... Brain..... Liver.....		243	27	133	30	43	2	419	59
		64	..	36	6	12	..	112	6
		13	1	6	4	..	..	19	5
		16	3	1	..	..	..	17	3
Rheumatism.....		43	..	36	..	12	1	91	1
Dropsies		12	1	8	1	..	..	20	2
Ophthalmia		173	..	39	..	6	..	213	..
Ulcers and Abscesses		64	..	43	..	6	..	113	..
Veneral Diseases		87	..	17	..	3	..	107	..
Cutaneous diseases		9	..	4	1	..	..	13	1
Wounds and Injuries.....		57	..	27	1	5	..	89	1
Punitus		4	..	1	..	..	..	5	..
Other Diseases		54	..	7	..	1	..	62	..
Total.....		1181	41	1105	96	286	4	2572	141
Total.....		847		43		791		8	
{ Admissions & deaths } to strength		2151		75		4316		93	
Deaths to admissions..		35		87		14		55	
Average daily sick to strength.....		102		179		302		134	
Ratio per 1000 of { Admissions and } deaths to strength. }		1679		86		3423		90	
Deaths to Adms...		51		18		16		30	
Average daily sick to strength.....		96		123		136		109	

During the last three years of its service in China, the 18th Regiment suffered much from Ophthalmia, a disease which is known to be very prevalent among the Chinese, on every part of the coast. That corps arrived in China in June 1840. During the year ending 31st March

1841	the strength at Head Quarters was	467	Admissions for Ophthalmia.....	29
1842	.....	460	.....	18
1843	.....	542	.....	7
1844	.....	485	.....	10
1845	.....	793	.....	108
1846	.....	531	.....	174
1847	.....	772	.....	180

Koolungsoo was the Head Quarter station in April 1844, Chusan from May 1844 to February 1845, and Victoria from March 1845, to March 1847.

The average strength, and admissions for Ophthalmia at Head Quarters, during every month and quarters of the last 3 years, are here given.

In	1844-5		1845-6		1846-7		Average.	
	Strength.	Adms.	Strength.	Adms.	Strength.	Adms.	Strength.	Adms.
April	380	2	417	9	805	41	534	17
May.....	909	5	451	25	806	29	722	20
June	890	16	495	14	799	14	728	15
1st Quarter	730	23	454	48	803	84	662	52
July	876	9	495	12	797	18	723	13
August	873	13	516	14	793	11	727	13
September	960	9	509	6	789	17	753	11
2nd Quarter	903	31	507	32	793	46	734	37
October.....	858	6	494	13	787	14	713	11
November	844	15	503	7	783	11	710	11
December.....	890	10	602	21	780	7	757	12
3rd Quarter.....	864	31	533	41	783	32	727	34
January	806	5	662	11	709	8	726	8
February	803	9	662	16	708	5	724	10
March	432	9	666	26	707	5	602	13
4th Quarter	680	23	663	53	708	18	684	31
Year	793	108	531	174	772	180	699	154

It hence appears that in March, April, and May, 1846, the disease was far more prevalent than at any time, either before or since ; 96 admissions being distributed over these three months, while many of the cases that afterwards occurred were relapses. Even in May, 11 only of 29 cases were primary attacks. On the 1st April 1846, 27 cases remained in hospital. In May the number varied from 39 to 48 and betwixt June and November from 33 to 52. It was reduced,

from 41 in the beginning to 20 in the end of December, chiefly by transfer to the convalescent list of cases recommended to be sent home, for change of climate; and betwixt the 13th January, when the Invalid ship sailed with 19 intractable cases of Chronic Ophthalmia, to the end of that month, from 16 to 13. In February the number was reduced to 7 and varied in March from 7 to 4, six being the number remaining on the 31st, the last day of the Military year.

Catarrhal or muco-purulent inflammation of the conjunctiva, rapidly followed by granulations of the inner eyelids, was the most prevalent form of the disease, and the patients almost invariably ascribed the attack to exposure to drafts or currents of cold air, while on guard in the night, or asleep in barracks.

Of 209 Ophthalmic cases, 10 only occurred among the Native troops, and of 199 among Europeans 180 occurred in the 18th regiment, leaving 19 for all other corps. Of the 180 cases, in the 18th, 72 were primary attacks, 107 relapses or re-admissions; 40 were attended by opacity, 20 by ulcers of the cornea, 3 by Psorophthalmia, 3 by Fistula lachrymalis, 1 by Staphyloma, 1 Pterygium and 1 Hordeolum. In a few, also, the deeper seated structures became affected.

The Ophthalmic cases were exceedingly obstinate and intractable. The constitutions of most of the patients had been weakened and vitiated by previous attacks of tropical disease. The general treatment consisted of local depletion, antimonials, fomentations, &c. followed by the nitrate of silver solution, liquor plumbi acetatis, or vinum opii, and various astringent washes. Chronic cases, with granular lids, were treated by the application of sulphate of copper or a strong solution of nitrate of silver, counter-irritation and tonic, or other constitutional remedies; but too frequently with little or temporary success only.

Great attention was given to the washing houses, attached to the Barracks, and to the means of personal ablution possessed by the men. From the spring of 1846, every company of the 18th regiment was provided with a liberal proportion of wash hand wooden basins, in lieu of large tubs, previously in use for washing the hands, face and feet of the men, as well as their clothes and linen, and with an extra supply, and a larger and better description of towels than they had been in the habit of using; the water, for personal ablution, was secured in large vats, furnished with stop cocks and locked covers: in autumn, jalousies were added to the verandahs of the

North Barracks ; and, during the second half of the year, the admissions for recent attacks of Ophthalmia were comparatively few.

On the 22nd July, 38 of the most obstinate and intractable cases were transferred to the Minden hospital ship, in Victoria harbour, to try the effect of change. Six of these were discharged to duty, and 32 sent back to their own hospital on the 22nd August, many of them improved, though less considerably than had been anticipated, and several were in a worse condition from relapses than when they had gone on board. Twenty-five of the 32 still remained in hospital on the 30th September, and of 48, the total number then under treatment, one had lost the sight of both eyes, and died afterwards of Marasmus and Diarrhœa, and two had adhesion of the iris to the cornea. The cases that were treated subsequently to January 1847, were almost all chronic and of long standing.

To these Contributions may be added an interesting notice of Chusan, as a military station, extracted from Surgeon Cowen's Report on the health of Her Majesty's 98th regiment, for the year ending 31st March 1846.

Chusan, the largest of a group of islands, bearing the same general name, is in 31° north latitude and 124° east longitude, a few miles from the main land of China. It measures about 75 miles in circumference, and is intersected, in every direction, by chains of hills, which are cultivated to the very tops, wherever possible, and enclose a succession of beautiful and picturesque valleys, well irrigated by rivulets, canals and the various other means which the Chinese so well understand. Some of the hills rise to the height of 1400 feet, and the vallies vary in extent, in different parts of the island. That in which the city Ting Hae is built, and in which also stood the cantonments of the 98th regiment, occupies a space of some miles in extent, and is remarkable for the fertility of its soil. In the vicinity of the hills, are crops of wheat, rye, barley and other grains, the rest being chiefly paddy fields which, in the spring of the year, are covered with luxuriant crops of clover, and of the mustard plant, then in full blossom, and of the most dazzling yellow colour, which is, however, relieved by every tint of refreshing green, from the variety of other crops, giving the island a most beautiful and fertile appearance. During the months of April, May, and June, the climate of Chusan very much resembles that of England, at the same season, and the health of the European troops is at its maximum. The number of sick in the 98th regiment, on the 1st April 1846,

was only 3 per cent of the strength, and many of the cases trifling. In July, August, and September, is experienced the distressing heat of southern India, and, at the latter end of this season, there is generally a good deal of sickness, from Intermittent fever, Chronic Bowel complaints and Indigestion. Almost every person complains of excessive languor, debility, want of tone and relaxation of bowels. The men lose the appearance of rude health, and most of them become more or less emaciated; even the Natives of India complain of the languor and distress, caused by the heat of this season, and say it is a different sort of heat from that experienced in their own country. In October, the weather becomes temperate, the mornings and evenings, as well as the nights, cold, and the troops begin to experience the benefit of the change; although, during this month and November, the mortality is great, in consequence of a number of cases of Chronic Diarrhœa, which had remained under treatment, and now drop off. In November, the weather becomes rapidly colder and in December, as cold as in England, frost and snow being sometimes of several days duration, and the thermometer 10° or 12° below the freezing point. This season, as well as the months of January, February, and March, very much resemble the climate of England; and the year may be divided into three very hot, three very cold, and six temperate months. The rainy seasons are generally at the change of the monsoon, from north-east to south-west, and *vice versa*.

The barracks occupied by the European troops were close to the sea; and being narrow, low-roofed, Chinese houses, of flimsy materials, fitted up for the occasion, were not well adapted to resist either the cold of winter, or the heat of summer. The rooms were of various shapes and sizes, and as well ventilated as it was possible to make them. The hospital was the only good house in the cantonment, being large, well built, and capable of accommodating comfortably 150 patients. In the spring of 1846, the ration of salt provisions twice a week was stopped, in consequence of the prevalence of bowel complaints, and with a view of improving the health and efficiency of the regiment, previously to its departure for India. The fresh meat and vegetables were good. The duties of the men were light, and every means were employed to make them comfortable, and to discourage them from going about the country and indulging in shamshoo. They had a comfortable canteen, ball courts, skittle grounds and games of cricket, to amuse themselves. The means of

ablution were deficient, more particularly in summer, there being no convenient place for bathing. Intermittent fevers and Diarrhœa were the most prevalent diseases. Betwixt the 22nd October and 6th November 1845, 28 men, 5 women, and 1 child were attacked by spasmodic Cholera, and 9 of the men, 2 of the women and the child died. The disease presented all the symptoms of Cholera, as it appears in India. Some cases, admitted in a state of collapse, were very quickly fatal. In some the spasms were very severe. In all the discharges had the rice water appearance. In several there was severe consecutive fever and gastritis. Many of the men attacked were, at the time, under hospital treatment, for chronic bowel complaints, and cases of relapse were not unfrequent.

With another extract, from Mr. Cowen's last Quarterly Report from Chusan, I take my leave of the Medical Statistics of China. "A fatal case occurred in a man, who had lingered under a disease, peculiar to this climate, which we call Diarrhœa, this being only a symptom of the general affection. The patient complains of debility and wasting away, of bad appetite, indigestion and irregularity of the bowels, the stools generally being of a pale colour and mixed with indigested pieces of food. After a time, soreness of the mouth is complained of, the tongue becomes red glazed and frequently ulcerated, as well as the gums, which bleed easily, the teeth feel loose, the breath has a disagreeable, scorbutic odour, thirst is complained of, particularly at night; there is frequently an attack of tympanites, which is relieved by flatulent eructations, and by passing thin stools, or sometimes by ejecting the contents of the stomach. Towards the termination of the disease, the patient becomes excessively debilitated, and emaciated; his colour a pale yellow, and his appearance perfectly exsanguine. In some cases pus has formed in the pupil of the eye, and ulceration of the cornea ensued, the patient becoming quite blind, although no inflammation of the eye had occurred. Generally he retains his faculties to the last, and often the bowel complaint throughout is but little complained of; sometimes he is carried off by effusion into the head and other cavities, sometimes by Marasmus. Of 4 cases remaining (30th June 1846), one is in the last stage, but I am happy to say the others are merely cases of simple Diarrhœa."

ABSTRACT of the Annual Sick Returns of Her Majesty's and the Honorable East India Company's Troops, serving in China, from 1st April 1846, to 31st March, 1847.

CLASSES OF DISEASES.	Royal Artillery and Min. Civil Ord.		Madras Artillery Europeans.		18th Royl. I. Regt.		98th Regt.		Total Europeans.		Madras Artillery Natives.		Madras Sap. Min. and Gun Lascars.		42nd Regt. Madras N. I.				Total Natives		Grand Total								
	74		33		775		264		1136		52		100		Victoria.		Stanley.		Saiwan.		Hong Kong.		Chusan.		1077		2223		
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	
Fever.	6	2	25	2	173	1	195	..	399	5	57	1	15	..	227	2	446	5	325	..	998	7	3	1108	11	1507	11	1507	
	5	..	18	..	7	..	1	..	31	2	4	4	3	..	18	3	24	..	2	..	44	4	1	53	9	84	14	84	
	8	..	..	..	84	2	..	..	92	2	..	..	10	..	112	8	94	2	22	..	228	10	..	238	10	330	12	330
Total.....	19	2	43	2	264	3	196	..	522	7	62	5	28	..	357	13	564	7	349	1	1270	21	4	1399	30	1921	37	1921	
Pulmonic (Compl.	1	..	..	..	5	..	3	..	9	..	..	..	1	..	2	..	..	..	..	..	2	..	1	..	4	13	..	..
	..	..	..	..	2	..	..	..	2	..	..	..	..	..	7	1	2	..	..	..	9	..	..	..	..	2	..	..
	..	..	..	..	4	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..	..
Pulmonic (Compl.	1	1	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	3	..	..
	..	..	..	..	..	..	..	..	1	3	..	..	5	..	1	1	..	..	7	..	35	2	..	2	1	123	5	..
	2	..	1	..	54	3	24	..	81	1	1	..	..	..	21	1	7	..	1	..	2	..	..	42	2	27	1	..
Hepatic (Compl.	8	..	..	..	17	1	..	..	25	1	..	..	..	..	1	..	1	..	..	..	3	..	..	6	..	6	..	..
	
	
Bowel (Compl.	12	1	1	1	84	4	27	..	124	5	1	..	6	..	32	3	12	..	9	1	53	4	5	..	65	189	9	189	
	..	..	2	..	10	1	..	..	12	1	..	..	..	..	..	..	..	..	1	..	1	..	..	1	13	7	..	
	3	..	..	..	4	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	1	..	..
Bowel (Compl.	3	..	2	..	15	1	..	..	20	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	21	1	21
	..	..	8	..	86	7	..	..	94	7	..	..	..	..	81	11	23	1	10	..	114	12	..	114	208	19	208	
	4	2	3	1	24	3	32	2	28	5	..	..	6	..	5	14	48	2	55	5	5	21	8	5	33	5	33	
Cerebral (Compl.	22	..	..	..	169	8	..	..	226	11	..	..	..	..	140	..	..	..	..	..	243	21	..	..	237	483	32	483
	4	..	2	..	21	..	1	..	31	2	..	..	2	..	..	1	..	..	..	..	..	..	..	..	35	2	..	..
	10	..	..	..	37	..	..	..	47	8	..	..	1	..	2	..	10	1	4	..	16	..	..	4	25	..	..	..
Cerebral (Compl.	40	2	13	1	346	18	37	2	436	23	..	..	9	..	230	25	88	4	73	5	391	34	8	..	408	844	57	844
	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1
	..	..	..	..	2	..	..	..	2	2	..	..	1	..	2	..	..	..	1	..	3	..	..	..	4	4	..	..
Cerebral (Compl.	2	4
	2	2	4
	4	1	1	..	1	1	14	2	..	1	1	1	1	14	4	2	14
Cerebral (Compl.	3	1	3
	1	1	4
	2	1	1	4	1	2	2	3
Cerebral (Compl.	6	1	..	..	15	2	6	2	27	5	1	1	3	..	2	..	4	1	1	..	7	1	..	..	11	38	7	38

ABSTRACT of the Annual Sick Returns of Her Majesty's and the Honorable East India Company's Troops, serving in China, from 1st April 1846, to 31st March, 1847.

CLASSES OF DISEASES.	Royal Artillery Sap. and Min. Ordnance 74				Madras Artillery Native 52				Madras Sap. Min. Lasers. 100				42d Regt. Madras Native Infantry.				Total Natives. 1,077				Grand Total. 2,223			
	Ad.		Dd.		Ad.		Dd.		Ad.		Dd.		Ad.		Dd.		Ad.		Dd.		Ad.		Dd.	
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Strength.....																								
Drops { Anasarca Ascites Oedema	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	3	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..

Total...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	3	..	..
Rheumatic Complts. { Rheumat. Acut. Chronic Lumbago Arthritis Odontalgia	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90	3	..	..
	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90	1	..	..

Total...	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100	2	..	..
Ulcers and Abscesses. { Phlegmon Fistula Ulcus	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	146	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..
	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	149	..	..	..

Total...	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	300	1	..	..
Morbi Oculorum.....	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	309	..	..	..
Morbi Cutis.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	165	..	..	..
Venereal Complts. { Syphilis Primitiva Ulcus Consecut. Bubo Simplex Phymosis Paraphimosis Gonorrhoea Hemia Hemoralis Stricture Urethre	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..
Total...	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	321	..	..	..
Wounds & Injuries. { Luxatio Subluxatio Vulnus Incisum Contusio Ambustio Fractura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65	..	..	..
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	138	..	..	..
Total...	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	254	..	..	..

ABSTRACT of the Annual Sick Returns of Her Majesty's and the Honorable East India Company's Troops, serving in China, from 1st April 1846 to 31st March, 1847.

Strength.....	Royal Artillery Min. Civil Ord. 74		Madras Artillery European 33		13th Royl. I. Regt. 775		98th Regt. 264		Total European Corps. 1,146		Madras Artillery Natives. 52		Madras Sap. Min. and Gun Lascars. 100		42nd Regt. Madras N. I.				Total Natives 1,077		Grand Total. 2,223							
	Ad. Dd.		Ad. Dd.		Ad. Dd.		Ad. Dd.		Ad. Dd.		Ad. Dd.		Ad. Dd.		Victoria. 499		Stanley 260		Saiwan. 847		Hongkong 847		Chusan. 74		Ad. Dd.		Ad. Dd.	
	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.	Ad.	Dd.
Punitus	1	..	8	..	2	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..
Cynanche Ton	5	..	3	..	8	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	9	..	..
.. Pharyng	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
.. Parotid:	4	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Carditis	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Splenitis	2	..	11	..	..	..	13	..	..	..	..	..	..	1	..	..	..	..	..	..	..	14	..	..	..
Otitis	1	..	..	..	11	..	..	..	12	..	..	..	..	..	..	3	..	..	..	..	6	..	..	18	..	..	..
Nephritis	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Otalgia.....	
Hæmorrhoids	1	..	1	..	11	..	4	..	17	..	..	..	..	..	..	1	..	..	..	..	1	..	..	18	..	..	..
Hydatidus	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Vermes	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Scrophula	1	..	..	..
Hydrocele	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Ischuria	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Dysuria	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Debilitas	5	..	4	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..
Atrophia.....	5	1	..	..	5	1	..	..	..	..	..	..	..	..	..	1	..	..	..	4	..	..	..
Hernia Inguinalis..	3	..	2	..	5	..	..	..	..	..	..	..	6	..	..	..	..	..	..	9	..	..	1	
Exostosis	1	..	..	..	1	..	..	6	..	..	..
Tumor	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Observatio.....	7	..	..	..	31	..	..	..	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39	..	..	..
Angina pector.....	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Total.....	9	..	3	..	96	1	15	1	123	2	..	..	2	..	10	..	10	..	1	..	21	..	1	..	147	..	2
Grand Total	133	6	50	3	1,566	20	459	7	2,238	46	74	6	92	..	847	43	791	14	149	8	2,129	65	98	4	2,393	75	4,631	121

ARTICLE V.

Notes on the Pathology and Treatment of Diseases of the Brain, as observed in the European General Hospital at Bombay. By C. Morehead, M.D.

Presented December, 1848.

In the 2nd, 6th and 7th numbers of the Transactions of the Society, a series of cases intended to illustrate the Pathology of the diseases of Europeans, as observed in the European General Hospital at Bombay, has been published by me. A short explanation of the objects kept in view in these communications was prefixed to the second part of the series.*

I was well aware that the narrative of fatal cases of disease, however accurate, was unlikely to attract attention, unless accompanied by the practical comments which they were calculated to suggest.

Still, I ventured to submit them to the notice of the Society in that imperfect manner, in the hope that they might prove of use to others who might chance to be engaged in enquiries into the Pathology of the diseases of India; and in the anticipation that, on future occasions, I might be enabled to make the explanatory remarks the subjects of separate communications.

This latter expectation has been in part realized by the "Notes" on Delirium tremens, Intermittent and Remittent Fevers and Dysentery, which have been already submitted to the Society and published in their Transactions.†

The object of the present communication is still further to redeem this pledge by making the cases of Cerebral disease, which are to be found in the series, the subject of practical comment. In doing so I shall arrange them under the following heads.

I. Cases in which well marked head symptoms during life and acknowledged morbid appearances in the contents of the cranium after death, were observed.

* Transactions Medical and Physical Society Bombay. No. vi. p. 32.

† Transactions Medical and Physical Society Bombay Nos. vi. and vii

II. Cases in which well marked head symptoms during life were noted ; but, in which no morbid appearances in the contents of the cranium were discovered after death.

III. Cases in which there were no head symptoms during life ; but in which appearances in the contents of the cranium, generally considered morbid, were observed after death.

I proceed to the consideration of the 1st Division. It consists of 58 cases and in these, with only two* exceptions, death took place, chiefly, in the way of coma.

It will be convenient to arrange these cases in the following subdivisions.

1. Fracture of the skull and concussion of the Brain.
2. Cerebral hæmorrhage independent of external injury.
3. Increased vascularity of the membranes and substance of the brain, including inflammation (marked by vascularity alone) determination and congestion.
4. Increased serous effusion in the cavity of the cranium, with or without increased vascularity. A thin veil of serous effusion in the sub-arachnoid tissue of the convex surface of the brain, or a quantity exceeding an ounce at the base of the skull or in the ventricles are looked up as evidence of increased serous effusion.
5. Bubbles of air in the vessels of the pia mater or in the sub-arachnoid tissue.
6. Inflammation of the pia mater and arachnoid (meningitis) marked by opacity and thickening of these membranes or by deposits of lymph or by serous effusion containing flaky flocculi.
7. Inflammation of the substance of the brain marked by supuration or softening.
8. Morbid growths—tumours—within the cranium.

1.

Fracture of the skull and concussion of the brain.

There are five† cases of fracture of the skull detailed. Four of these occurred in Sailors, two of them by falls from windows, one by a fall into the hold of the ship, the other by a fall from the main-yard to the deck. The fifth case was of a young medical Officer thrown from his buggy.

* Nos. lvi. and lxxviii.

† Nos. xlvi. xlvii. xlviii. xlix. 1. Transactions Medical and Physical Society No. vi.

In all these instances the parties were pitched upon the top or side of the head. In none of them was there any wound of the scalp; but in all there was more or less swelling with ecchymosis. In none was the fracture ascertained with certainty during life by examination of the head.

In each case the fracture was found after death to be very extensive and to involve chiefly the parietal, frontal, temporal and occipital bones. In two there was wide separation of the coronal or sagittal suture. In all the fracture extended to the base of the skull.

Extensive extravasation of blood, within the cranium, was found to have taken place in all the cases. In three it existed between the dura mater and the fractured parts of the skull; in two on the surface of the brain and at its base, between the layers of the arachnoid. In one case the blood seemed to have proceeded from the right lateral sinus. In two, coagula were found in the substance of the hemispheres; but in the other three, the cerebral structure was uninjured.

The period, that elapsed between the receipt of the injury and the fatal termination, varied. In two, death took place in about four hours and in both instances there was injury of the chest—fracture of the ribs—to a much greater extent, however, in one case than in the other.

Of the remaining three cases one proved fatal in 32 hours, and two in from 16 to 18 hours. In two of these the fracture of the skull was the only injury; in the third there was also fracture of the right scapula.

From the extent of the injury and of the extravasations of blood in all these cases, it is vain to attempt to trace any relation between the symptoms and injury of particular parts of the brain. Still there are certain of the phenomena which it is of interest to note.

In two* of the cases there was bleeding from the ear, and in these the fracture of the base of the skull passed through or adjoined the petrous portion of one of the temporal bones.

In the remaining three† cases, the neighbourhood of the foramen magnum, the orbital plate of the frontal bone, the part of the temporal bone anterior to the petrous portion, and the great wing of the sphenoid bone were the parts, at the base of the skull, to which the fracture extended. In these cases there was no bleeding from the ear noted.

* Cases No. xlv. and l.

† Cases No. xlvii. xlviii. xlix.

In two of the cases, complete coma, dilated pupils and stertorous breathing were present from the time they came under observation. These were the cases which proved speedily fatal. In two there was slight vomiting of blood. In two the stage of complete coma was preceded by delirium which continued for a short time, then passed into drowsiness succeeded by coma. In one, this stage of delirium was well marked and occurred about two hours after the injury. The individual walked about and resisted control, like a drunken person.

In all, the pulse varied at different times, but there was a stage in which in all the cases it was observed to be full. Yet, the abstraction of blood was badly borne, the pulse quickly losing its fulness as the blood flowed. In none was venesection carried to any great extent, but I believe that even the limited degree in which it was practised, tended to hasten the fatal result by depressing the action of the heart.

These cases have certainly their practical interest. They shew that we may have extensive fracture of the skull without wound of the scalp, or other external sign of the nature of the injury;—with in fact nothing but the general symptoms and a history of the accident to guide our diagnosis. These however for the most part will be found to be sufficiently explicit. In the cases rapidly fatal, there were, as guides to the true nature of the injury, the profound coma, the stertor, the dilated pupils, and the absence of the depressed state of the circulation characteristic of concussion. In the more protracted cases, there was the drowsiness gradually passing into coma, as the increasing extravasation of blood led to increasing pressure on the brain.

But such cases as these are not only of interest in reference to surgery, they are also of value in relation to idiopathic disease. There are for example points of analogy between fracture of the skull with extensive extravasation of blood, and that form of apoplexy which depends upon extensive cerebral hæmorrhage. They have at least the hæmorrhage in common, and the phenomena dependent on this condition must be equally present in both, and will be found to be generally ushered in, in both, with the feeble pulse and coldish skin indicative of depressed action of the heart.

In this point of view, also, the delirium, which was present in two of these cases and markedly so in one, is of interest. It justifies the inference that we may occasionally expect to meet with the same symptom at the commencement of that form of apoplexy which depends upon extensive cerebral hæmorrhage.

A man was lately admitted into the Jamsetjee Jejeebhoy Hospital in a state of delirium, caused it was supposed by the poison *Datura*. An emetic was administered and acted well. Shortly afterwards he became drowsy passed into coma and died. The vessels of the membranes of the brain were found after death highly congested. There was considerable serous effusion in the cavity of the cranium and a clot of extravasated blood was found in each lateral ventricle. Are we to suppose that the delirium in this instance was caused by *Datura*, and the extravasation of blood in the ventricles by the action of the emetic on a previously congested brain? or are we to consider it a case of cerebral hæmorrhage characterised by delirium in its early stage? The history does not assist us. The individual, a stranger, of whom nothing was known, was picked up on the road by the Police in a state of delirium and brought to the Hospital.

On the treatment of these cases of fracture of the skull, there is little room for comment. In none was there any clear indication for surgical interference. In all, the abstraction of blood was badly borne and perhaps we are justified in expecting the same result from venesection adopted in these forms of apoplexy dependent on extensive cerebral hæmorrhage. There must indeed often be a doubt whether a given case of apoplexy is of this nature. Yet the practical rule as regards venesection is sufficiently simple. The vein may be opened and the pulse carefully observed. If as the blood flows, the symptoms of oppression of the brain become less marked and the pulse does not unduly flag, there are grounds for hope; but if on the other hand the pulse sinks rapidly and the coma persists, there is too good reason for inferring that cerebral hæmorrhage exists and that the fatal result will be hastened by continuing the abstraction of blood.

Concussion of the brain.—Two cases are recorded under this head. One the Officer of a ship who fell from the deck to the bottom of the hold of the ship and was brought to the Hospital shortly afterwards with an extensive lacerated wound of the upper part of the head, which laid bare the bone. The pupils were dilated, there was a state of low muttering delirium and the pulse was of moderate strength. Death took place two hours and a half after admission. There was no fracture of the skull and only slight serous effusion on the surface of the brain. The sternum was fractured at its upper part, and blood, extravasated into the areolar tissue of the anterior mediastinum, pressed on the lower part of the trachea.

In this case there were dilated pupils and low muttering delirium,

and yet how different the condition of the skull and its contents from that observed in the cases of injury which have been already considered and in which the same symptoms were present. The rapidly fatal result was no doubt in a great measure attributable to the fracture of the sternum, and the blood extravasated behind it making pressure on the trachea and probably also interfering with the action of the heart.

A seaman was also the subject of the other case of concussion. He fell from the deck of the ship to the bottom of the dock, a height of about 30 feet, and was picked up insensible with his face immersed in the mud. He was brought to the Hospital two hours after the accident, and died two hours after admission. He was incoherent and drowsy, and became comatose with hurried respiration before death. There was a simple fracture of the right leg, but no wound or contusion of the scalp. No injury of the skull was found after death, but the vessels of the pia mater were very turgid with black blood, and extravasated streaks were observed here and there. Serous effusion also existed between the arachnoid and pia mater and at the base of the skull. Close to the rima glottidis, traces of the mud of the dock were observed, and black matter, also apparently mud, was found in the stomach mixed with undigested food.

How is the turgid state of the vessels of the membranes of the brain to be explained in this case? Was it the consequence of impeded return of blood from the brain,—the result of the hurried and oppressed respiration? or was it caused by bruises of the head received during the fall?

The latter is probably the correct explanation,—for there is certainly a striking sympathy between the conditions of the capillary circulation on the external and internal sides of the skull. An injury leading to inflammation of the pericranium followed by a similar state of the opposed dura mater, Erysipelas of the scalp attended by inflammatory vascularity of the membranes of the brain, the sedative action of cold on the capillaries of the scalp responded to by a similar state of the capillaries within the skull, may be quoted as instances of this sympathy. But there is another perhaps more striking than any of these, and yet I am not certain that it has been generally noticed.

In the year 1834, four men* and one woman were murdered by a gang of Thugs between Sassoor and Jejoory. Their bodies were sent to Poona for inspection, and through the kindness of Dr. Ducat

* No. xi. Transactions Medical & Physical Society of Bombay No. ii. p. 3.

I was permitted to be present. In all there was more or less contusion of the integuments of the head, but no injury of the skull. In the case in which there had been the greatest contusion of the scalp, the part of the brain opposed to the contusion was much more vascular and congested than any other part.

On contusion of the scalp, blood becomes more or less extravasated into the texture of the skin and the areolar tissue subjacent, and no doubt there is a congested state of the capillary circulation of the contused and adjacent parts. Is it the case that a similar congested condition of the adjacent capillaries *within* the cranium also exists? The fact just quoted encourages this belief, and my impression is strong, though I have not notes before me to which to refer, that I have observed the same coincidence in other instances.

If true, it is practically important as showing additional reason why all injuries of the scalp should be treated with care and watchfulness from the very commencement till the removal of all traces of derangement.

2.

Cases of Cerebral hæmorrhage independent of external injury.

In the series of cases, there are only two instances of this form of apoplexy. One* occurred in the month of November in a musician of the Garrison Band, 34 years of age, a man of most dissipated habits and frequently under treatment for delirium tremens, or other consequences of intemperance. He was admitted into the Hospital in a drowsy state with dilated pupils and compressible pulse, and died on the fifth day after admission. During the first two days, there was drowsiness with muttering delirium, on the succeeding days these symptoms were at times less in degree, and on one occasion he answered questions when roused and the pulse was of better strength. This apparent improvement was of short duration. He was seized with convulsions, followed by complete coma and death in 12 hours.

After death eight ounces of blood, partly coagulated, was found extravasated, between the layers of the arachnoid, on the surface of the right hemisphere of the brain. Two or three ounces of serum were effused at the base of the skull.

If the symptoms from the commencement of the attack are in this

* Case No. ix. Transactions of the Society No. ii.

case to be viewed as depending on a gradually increasing extravasation of blood, then its duration for five days may be looked upon as an unusual circumstance. It is perhaps however not improbable that at first there may have been merely turgescence of the vessels of the brain, and that the convulsion and the hæmorrhage were secondary and coincident events.

The second* case occurred in the month of April in a Pensioner 35 years of age, of feeble constitution and very intemperate habits. He was admitted into Hospital in a state of complete coma with convulsive twitching of the muscles of the face and contracted pupils, and died a few hours afterwards.

Extravasated coagula of blood were found on the surface of the left hemisphere, and extensive serous effusion existed on the surface and in the ventricles of the brain.

3.

Increased vascularity of the membranes and substance of the Brain including inflammation (marked by vascularity only), determination and congestion.

Of this subdivision there are seven† cases recorded.

4.

Cases in which increased serous effusion in the cavity of the Cranium, with or without increased vascularity was observed. After death a thin veil of serous effusion in the sub-arachnoid tissue of the convex surface of the Brain, or a quantity exceeding an ounce at the base of the Skull or in the Ventricles have been considered as evidence of increased serous effusion.

Of this subdivision there are 27‡ cases.

There will be a practical convenience in discussing these two subdivisions at the same time, for they are in fact different stages of the same pathological state.

* Transactions No. vi. p. 42. No. liii.

† Transactions Medical and Physical Society No. ii. p. 157. No. vi. p. 35. Nos. xlv. liv. lv. lix. lx. lxxi. lxxii.

‡ Transactions No. ii. p. 104. &c. Nos. iv. v. vi. vii. viii.

Transactions No. vi. p. 44, &c. lvi. lvii. lviii. lxi. lxii. lxiii. lxiv. lxv. lxvi. lxvii. lxix. lxx. lxxvii. lxxviii.

Transactions No. vii p. 83. Nos. clxxxi. clxxxii. clxxxv. clxxxix. cxcvii. cc. cci.

In both there had been excessive distribution of blood in the arterial capillaries of the brain and its membranes. In the first (No. 3.) death took place while as yet all the blood was within the vessels. In the second (No. 4.) the fatal result had been postponed till some of the serous portion of the blood had transuded. A longer duration of the deranged capillary circulation of the part, a debilitated state of the general system, a watery condition of the blood are circumstances which favor the occurrence of the serous effusion.

Of the 34 cases included in these two subdivisions, five* were of Epidemic Cholera, in which head-symptoms were present before death. These cases will be more appropriately alluded to under the 6th subdivision, with those of the same disease in which thickening and opacity of the arachnoid membrane of the brain were found after death.

Thus then there are left for discussion under the present head 29 cases of the series. They will be found to be most unequally distributed in the different months of the year.

November, December, January, February, March, are the coolest months of the year in Bombay. In these months, only three of the twenty nine cases occurred—2 in November, 1 in February.

The remaining 26 cases are distributed as follows—

April 2, May 6, June 4, July 4, August 2, September 5, October 3 ;
Total 26.

Three of the 29 cases occurred in Females. 1 in a Native of India of 47 years of age ; 2 in Girls of the Byculla School, Indo Britons of 8 and 9 years of age.

Twenty six cases were of adult males whose ages ranged from 20 to 58. One was an African ; one an inhabitant of Ceylon. The remaining 24 were Europeans, of whom 13 were Sailors, 5 Engineers connected with the Steam department, 1 a Tavern keeper, 1 a Midshipman in the Indian Navy, 1 an Officer in the Bombay Army, 1 a Warrant Officer. Of 2 the occupations were not noted, but in all probability they were seamen, who, at the time of admission, were out of employment.

Of these 29 cases, which form the subject of present consideration, 21 were distinctly recorded as having been of intemperate habits. Of six the habits were unknown, and the remaining two were children.

* Transactions No. vii. Nos. clxxvii. clxxxi. clxxxii. clxxxv. clxxxix.

In the statements which have just been made, a very marked relation is apparent between these forms of cerebral disease and two of the most influential predisposing and exciting causes of disease in Europeans, in tropical climates—elevated temperature and habits of intemperance.

Twenty six of the cases occurred in the hot months of the year, and twenty one in individuals addicted to drinking.

Both these causes of disease were, at times, predisposing; at others, exciting. For example—the cerebral symptoms in some instances were clearly traceable to exposure to elevated temperature, of individuals habitually intemperate; in other instances to great excesses in drinking in the hot months of the year.

These 29 cases of disease were entered in the Hospital Register under the following heads.

Apoplexy	7
Remittent Fever	10
Delirium Tremens	10
Amentia	1
Colica Pictonum	1

29

On each of these classes of disease I shall offer some remarks.

Apoplexy,

Of the 7 cases* classed under this head, six occurred in sailors and one in an African. Five in the months of *May, June* and *August*; and two in the month of *November*. Five in individuals who had been committing excesses in drinking; and of two† the habits were not certainly known, but in all probability they were also intemperate.

In three‡ of the cases the apoplectic state was immediately consequent on great excesses, and might, with much propriety, have been designated, “Fatal poisoning by alcohol.”

In three§ others, judging from the history given at the period of admission, it seemed that the state of coma had been preceded by convulsions, and these by slight febrile symptoms, delirium or drowsiness.

* Transactions No. ii. No. viii.

Transactions No. vi. p. 42. &c. Nos. liv. lv. lvi. lvii. lviii. lix.

† liv. lv.

‡ viii. lviii. lix.

§ liv. lv. lvii.

In one * case, there was vomiting and cramps of the legs and much failure of the pulse and death without complete coma.

It seems to me sufficiently probable that the last four cases adverted to might with more nosological accuracy have been classed under the head *Encephalitis* or *Phrenitis*, i. e. general inflammation both of the membranes and substance of the brain, fatal in its early stage.

The *Phrenitis* of CULLEN, with severe headache, ardent pyrexia and violent delirium, rare in temperate climates, is generally stated to be more common in tropical countries. But this, I apprehend, is one of those vague and general statements, in regard to tropical diseases, with which works on practical medicine more or less abound. If these forms of disease, of short duration, the consequence of elevated temperature and intemperance, characterized by slight febrile symptoms, quiet delirium, convulsions and coma, are not correctly classed as “*Phrenitis*,”—I must admit that as yet I have no practical knowledge of this disease.

Of the symptoms worthy of note, in the forms of cerebral disease to which I at present allude, may be instanced the rapid failure of the pulse in strength, associated with increased frequency and the occasional partial return of consciousness, some hours before death. This latter phenomenon, when accompanied with a gradually failing pulse, can hardly be mistaken for an indication of improvement.

In some of the cases the pungent heat of the skin is noticed. This most unfavorable symptom will, it is believed, be found for the most part in cases in which the state of coma is profound and has come on suddenly, in consequence of exposure to elevated temperature (*coup de soleil*), or in which the coma has been preceded by a sudden attack of convulsions.

Remittent Fever.

Of the 10† cases entered under this head, three‡ were complicated with gastro-enteric inflammation. One in an inhabitant of Ceylon, admitted into Hospital in a very destitute state. The other two in girls of the Byculla School, who had been, for some time, suffering from bad health. On these cases I shall not offer any further comment.

* lvi. † Transactions No. ii. No. iv,
Transactions No. vi. Nos. xlv. lxix. lxx. lxxi. lxxvii. lxxviii.
Transactions No. vii. Nos. cxvii. cxix. cc.

‡ cxvii. cxix. cc.

Of the six remaining cases, one was of a Female, a native of India, three of Sailors, one of a Warrant Officer, and two of Engineers of the Steam department.

For the most part they had all ailed with slight febrile symptoms for two or three days before admission into Hospital, and the fatal result took place in two or three days after the development of the head symptoms.

The general character of the symptoms (though it is not to be understood that they all presented themselves in any one case), was febrile heat of skin with morning remission and evening exacerbation, a pulse frequent and in general readily compressible, headache, vomiting, furred tongue, restlessness, incoherent talking, tremors of the hands, tendency to dilatation of the pupils, drowsiness passing (with one * exception) into coma, and in one† case preceded by convulsion.

In one ‡ individual there had been anasarca swellings to a limited extent, for some time before the head symptoms appeared, and after death both kidneys were found to be affected with Brights disease.

Delirium Tremens.

Of the 10§ cases classed under this head, three occurred in Sailors, three in Engineers of the Steam department, one in a Tavern keeper, one in an Officer of the Army, and of two the occupation is not noted.

They were observed in the following months: *April 1, May 2, June 1, July 2, September 4.* Two|| of the cases, adverted to under the present head, approached very nearly in character to those of the preceding class, and it is not improbable that they might have been placed in it with more accuracy. There is, moreover, in one of them the additional interest of complication of commencing endocarditis; and it is doubtful whether the head symptoms may not in part have been attributable to this.

The general features of the symptoms in the remaining eight cases may be thus described:

After continued excesses in drinking, there followed tremors, rest-

* lxxviii.

† lxxi.

‡ xlv.

§ Transactions No. ii. Nos. v. vi. vii.

Transactions No. vi. Nos. lxi. lxii. lxiii. lxiv. lxv. lxvi. lxvii.

|| v. vi.

lessness, incoherence passing into that form of delirium characteristic of the disease. The pulse became frequent (120) and lost strength, the pupils contracted. Then succeeded drowsiness with agitated movements of the hands or twitching of the muscles of the face, coma in some instances preceded by convulsions, and death in from two to eight days after admission into Hospital. In some cases when the coma came on suddenly there was pungent heat of skin.

The chief differences between the symptoms now detailed and those of the preceding Class (remittent fever), are, in the former (delirium tremens), the absence of febrile heat, the greater tremors, and the peculiar character of the delirium.

We have already seen that both forms of disease arose under the influence of habitual intemperance, and exposure to elevated temperature, and there is reason for believing that the difference between them has generally depended on the degree in which these influences have been respectively operative. So that it not unfrequently happens, that the distinction between them is badly defined, and there is a tendency in the one to merge, by degrees, into the other. But this occasional difficulty in the diagnosis is no great practical evil, if we rightly understand the pathology of these affections, and have clear views regarding the indications of their cure.

The principles of treatment, in both, are much the same. But the practical evil has been this, that in the one form (remittent fever), measures of depletion have been generally considered the proper curative means, whereas in the other (delirium tremens), opiates and stimulants.

It appears then that under the heads *Apoplexy*, *Remittent Fever*, and *Delirium tremens*, have been classed 27 cases of cerebral disease—the product of elevated temperature, and the excessive use of spirituous liquors. It is most important that we should endeavour to have precise views in regard to the pathology and treatment of these serious and not unfrequent forms of disease. I believe them to be all closely allied, to be mere modifications of one pathological condition, viz. a state of excessive distribution of blood in the capillaries of the brain, and its membranes. Whether this state of the capillaries is with more propriety designated *determination* of blood, or *inflammation*, is immaterial as regards our present enquiry. The question I shall therefore leave undiscussed.

1. (a) When this deranged condition of the capillary circulation of the brain takes place suddenly and extensively, it is followed by

immediate suspension of the functions of the brain—coma, in some instances, preceded by convulsions.

To this form of the disease the name Apoplexy has been given, or Coup de Soleil when it has been clearly traceable to exposure to elevated temperature.

(*b*) As a mere modification of this, it sometimes happens that the coma is preceded for a few hours by febrile symptoms, delirium, and drowsiness. In these instances the suspension of the functions of the brain has followed perversion and slight excess of some of them, and this probably in consequence of the deranged capillary circulation having taken place less suddenly and not so extensively.

2. In a second form of this pathological state, the suspension of the functions of the brain—coma—is preceded by a longer period of deranged action, by headache, delirium, tremulous movements, drowsiness, and occasionally convulsions. With these symptoms of deranged cerebral functions, there is associated a febrile state of the system, often exhibiting distinct remissions and exacerbations, with more or less derangement of the abdominal functions, marked by vomiting, coated tongue, and deranged secretions. Such cases have been looked upon as instances of Remittent Fever with cerebral complication. They differ from the (*b*) variety of form No. 1, in that the period elapsing between the first head symptoms and the coma is of longer duration, though still not in general extending beyond* three days. They depend upon the same deranged condition of the capillary circulation of the brain, only less in degree and coming on more progressively. Further, we may in many cases acknowledge the influence of malaria in addition to elevated temperature and intemperate habits. For this form of disease will be found to occur more commonly in the malarious seasons of the year—September and October—than at other periods.

3. In a third form of this pathological state—the coma is preceded, as in the second, by two or three days of perverted action of the brain, somewhat different however in kind,—by more of tremulous movement, by delirium less muttering, more of the busy form characteristic of delirium tremens, preceded by very slight, if any febrile disturbance, or derangement of the digestive organs, and followed by convulsions or drowsiness and coma. These have been classed as fatal cases of Delirium Tremens, and the condition of the capillary circula-

* Cases of Remittent fever not unfrequently prove fatal under coma, after the 10th day. But this is a different form of disease from that which I am at present considering.

tion of the brain, in all probability, differs little, if at all, from that of the 2d form, associated however with a greater degree of the influence of habitual intemperance, and with none of the influence of malaria.

In those milder and most frequent instances of delirium tremens, in which the delirium and tremors end in sleep and recovery, instead of convulsions and coma,—we have in all likelihood the same influence of habitual intemperance but less of the derangement of the cerebral capillary circulation.

In all these forms of fatal cerebral disease to which allusion has just been made, the general circulation of the blood is seriously deranged. There is a marked tendency to depression of the action of the heart indicated by a frequent and failing pulse. Whether this proceeds from the *causes* having a depressing influence upon the heart as well as on the brain, or whether the influence is first on the brain and then, through the nervous system, on the heart—need not at present be enquired into. But the fact is important in relation to treatment, for it renders extreme caution necessary in the use of those measures of depletion, so often valuable in excessive distributions of blood to the brain occurring under other circumstances. This will become more apparent as I proceed with the consideration of the causes themselves.

The apparent causes of the forms of cerebral disease which we have at present under consideration, would seem to be exposure to elevated temperature and the use of spirituous liquors. Either of these, when great in degree, may very readily act as an exciting cause of excessive distribution of blood to the brain. But, when less in degree and long continued in their operation, they act rather as predisposing causes of disease, enfeebling the system, impairing the vigour of its actions, more especially those of the nervous system. Thus, under the influence of habitual exposure to elevated temperature and use of spirituous liquors, the body, in general, and the brain, in particular, becomes predisposed to disease, and when, in such states of predisposition excessive distribution of blood to the brain takes place, it will, as we might expect, be characterized by increased action of the organ with diminished power tending to pass into suspension of action. In other words, by delirium muttering and busy, not violent, by tremors of the muscles, drowsiness and coma.

When the deranged circulation is great in degree and suddenly brought about, then there is the annihilation of function at once—coma, apoplexy.

But the influence of these predisposing causes is not restricted to the nervous system, it affects the muscular system also, it impairs the energy of the heart as well as of the brain. Hence, under these forms of cerebral disease, the tendency to depression of the heart exists as well as the tendency to depression and suspension of the action of the brain.

In a word then elevated temperature, intemperance in the use of spirituous liquors, in different degrees, separately or combined, are to be considered as causes which sometimes predispose to, at others excite disease. It is their influence in both these relations that leads to the forms of cerebral disease which we are at present discussing. Sometimes they are to be traced to habitual exposure to elevated temperature as the predisposing cause and to excess in drinking as the exciting one; at other times to habitual intemperance as the predisposing cause and to exposure to the sun as the exciting one; or, either singly or both combined may, according to the degree, be at one time the predisposing, at another the exciting cause of cerebral disease.

But there is still another view to be taken of the habitual excessive use of spirituous liquors as a cause of disease. The alcohol may be considered as a poison and the phenomena, which attend its influence, may be viewed, just we do those of other narcotic poisons, as the consequence of the action of these external agents on the nervous matter of the brain, to which they have been conveyed (we may assume) by the current of the blood.

The coma from opium and other narcotics is, we know, very generally attended by excess of blood in the capillaries of the brain, whether the special influence of the poison on this part of the capillary circulation, or whether in accordance with the general law, that where we have excess of action, there we find determination of blood, and where we have defect of action, there we have congestion of blood-matters not to our present enquiry.

The delirium, the sopor, the occasional fatal coma of drunkenness are, in the same manner, caused by the influence of the alcohol conveyed to the nervous matter of the brain, and are attended, for the same reason, with excess of blood in the capillaries. It is because we have the influence of elevated temperature, in addition to that of alcohol, as a cause of excessive distribution of blood to the brain, that we have more of fatal coma from intemperate habits in tropical than in temperate climates.

It is also of importance to recollect that, taken within certain limits, these poisons after a time are eliminated from the system and the deranged actions, which they occasioned, cease to exist. Hence recovery from the sopor of opium or of alcohol.

But many poisons have different actions on the animal system, according to the quantity in which they are used, and according to whether they are introduced speedily or slowly and continuously. For example the paralysis which results from the slow and gradual introduction into the system of arsenic, mercury, or lead, is a form of derangement very different from that which takes place from the same agencies under different circumstances.

May we not apply the same principle in explanation of the different phenomena which attend the introduction of alcohol into the system. May we not suppose the delirium and sopor of intoxication to be the consequence of the immediate influence on the brain of alcohol present in great quantity in the blood, and to be recovered from, after a time, when this alcohol has been eliminated. And may we not suppose, the delirium and tremors of delirium tremens to be the result of the influence of the same poison accumulated more slowly in the blood, incorporated, if we may so speak, with the nervous matter of the brain and only to be recovered from when longer time has been given for a slower process of elimination.

This view is certainly in accordance with phenomena of the disease, which have been noted irrespective of all theory; and it affords the best explanation of the rationale of that course of treatment which by many has been found to be the most successful. I allude to the circumstances * dwelt upon in my "Notes on the treatment and pathology of delirium tremens," and previously observed by other enquirers—that the deranged actions of the nervous system, the restlessness, the delirium, the tremors require to run a certain course before they cease and that the indication of cure, under this view, is merely to moderate, not to destroy the deranged actions of the brain by forcing their suspension i. e. the state of sleep. The sopor of opium or of alcohol in excess may be moderated and the risk of death from coma lessened, but we possess no antidote which, by destroying the poison, will at once restore the brain to the active exercise of its functions. The poison must be eliminated from the blood before its influence will cease, and, for this, time is required.

So, in the view that the delirium and tremors of delirium tremens are caused by the direct influence of alcohol on the nervous matter of

* Transactions Medical & Physical Society No. vi. Page 142 & 147.

the brain and are not to be removed till time has been given for the elimination of the noxious agency, we find the best explanation of what I believe to be an undoubted practical fact, that the treatment of delirium tremens which keeps in view merely the moderation of the symptoms, and does not aim at extinguishing them by opium, is the safest and most successful. It further best explains what I believe has been observed by different Practitioners, that many cases of delirium tremens do very well without any medical treatment whatever.

As bearing upon this subject I may allude to the cases of supposed poisoning with *Datura* which are from time to time received into the Jamsetjee Jejeebhoy Hospital. The symptoms are in many respects allied to those of delirium tremens. The delirium is more muttering, not so busy as that of delirium tremens, but there is the same rambling of the mind on subjects not present to the senses. There is the same power of controlling the thoughts for a few moments, the same desire to appear rational and, above all, the same picking of small objects, as if they were indistinctly seen, which is often observed in the advanced stages of delirium tremens.

Where the quantity taken has been large, there is coma with agitated movements of the hands and lips, and picking movements of the fingers. In fact, the same class of deranged nervous actions which characterize the third stage of delirium tremens. There is however this great difference in these latter phenomena when caused by *datura*. They are very generally recovered from, not by a return from coma to a state of health; but the coma ceases, and then succeed the delirium and the other phenomena, which attend those slighter cases which have never passed into coma.

What is the indication of cure in these cases of *datura* poisoning after the time has passed for the exhibition of emetics and purgatives with the view of removing the poison from the alimentary canal. Certainly, not an attempt to destroy the delirium of *datura* by the sopor of opium, or to remove the coma of *datura* by the means of treatment applicable to idiopathic apoplexy.

They are viewed as deranged states of the nervous system, caused by the presence of a poison in the blood, and which will not cease till time has been given for its elimination. If the delirium be troublesome and active, and the pulse do not contra-indicate, antimonials and cold affusion are appropriate means for moderating these deranged actions. If the pulse be feeble and the skin cold, which is often the case, then stimulants are used to counteract this tendency to death

by syncope. If coma comes on, then it is recollected that the suspended action of the brain, consequent on narcotic poisons, is attended by a degree of congestion, and (the state of the pulse and skin permitting) a few leeches, cold douche and a blister to the nucha are used to lessen this congestion. It is not to be doubted that these means of treatment are often very useful and conducive to the successful issue of many of these cases.

The similarity of many of the phenomena of poisoning by datura and those characteristic of delirium tremens is a circumstance which seems to me to afford a reasonable confirmation of the idea that delirium tremens is nothing but one form of poisoning by alcohol ; and to explain the practical fact, that we most successfully treat the disease when we observe the same indications of cure i. e. moderate the symptoms, oppose the tendency to death, and allow time for the elimination of the poison from the blood, before we hope for perfect recovery.

There is still a circumstance in the pathology of delirium tremens, which it is important to note.

The excessive and impaired action of the nervous matter of the brain leads, as has been already explained, to excess of blood in the capillaries of the organ, and this excess will be more or less as there chance to be operative other conditions conducive to the same deranged state of the circulation, such as elevated temperature and excitement of mind. In the treatment of delirium tremens this additional excess of blood must be regarded. It is this part of the pathology and treatment of the disease which has been too much overlooked ; and the disregard of it may perhaps explain how it is that the treatment by free opiates and stimulants would seem not to be so hurtful in temperate climates as it most undoubtedly is in Bombay.

I have thus then endeavoured to show that, in the pathology of these forms of cerebral disease dependent on elevated temperature and intemperate habits, there is much in common, and I have attempted to explain what seem to me the grounds of difference between delirium tremens and the cases entered as apoplexy and remittent fever.

I shall now offer a few observations on the *treatment* of these forms of disease ; and first of Delirium Tremens.

On this subject I have nothing to add to, or to alter in the "Notes on the treatment and pathology of delirium tremens" published in a former No. of the Society's 'Transactions'. In that paper the treatment of the disease by cold affusion, tartar emetic and moderate opiates, in preference to the more common mode by free opiates, with or without stimulants, was recommended with much confidence. I ventured to

express myself in the decided manner which I adopted, because the opinions formed were the result of ample experience and much cautious and careful observation.

Subsequent experience has confirmed these views, and I have the satisfaction of knowing that the Medical Officers, who have succeeded me in the European General Hospital, have, on this point of practice, arrived at results quite in accordance with my own. I say nothing of the treatment of delirium tremens by free opiates and stimulants in temperate climates, but I feel myself justified in very positively asserting, that, in the delirium tremens of Europeans in Bombay, it is a course of treatment attended with much hazard and which, when systematically followed, is certain of leading to unfortunate results.

Though I have nothing to add to what I have already written regarding the treatment of delirium tremens, I shall offer a few remarks on the principles kept in view and on their relation to the pathology of the disease.

1. There is excessive and perverted action of some of the functions of the brain, evidenced by the delirium and the tremors, the consequences (it is assumed) of the direct influence of the alcoholic poison on the brain. Moderate opiates calm this excess of action, the effect of this agency being to lessen and, when given in sufficient quantity, to suspend the functions of the brain. I have already endeavoured to explain why the attempt to *suspend* the deranged action of the brain, in the early stages of delirium tremens, is an indication grounded on an incorrect view of its pathology.

2. As another condition in the pathology of the disease we have excess of blood in the capillaries of the brain—the consequence in some degree of mere excess of action of the organ, and also the consequence of other influential associated exciting causes, as elevated temperature, plethoric habit, excitement of mind, recent excesses in drinking. This state of the capillary circulation of the brain in delirium tremens constitutes an important part of the pathology of the disease, as observed in Bombay, because it is on this condition that, in a large proportion of the unfavourable cases, the fatal result depends.

Just as it does in those allied forms of cerebral disease which have been here classed under the titles apoplexy and remittent fever with cerebral complication.

Indeed, I believe that they may all be * viewed as Encephalitis, vary-

* It will, in the opinion of many, I doubt not, be thought that in venturing to use the term "Encephalitis" in relation to delirium tremens, that I make a retrograde movement in the pathology of the disease and one calculated to lead to practical errors. Whether

ing in degree and occurring in differently predisposed or deranged conditions of the nervous matter of the brain. This deranged condition of the capillary circulation of the brain, the consequence of elevated temperature and habitual intemperance, does not, generally speaking, admit of being controlled by bloodletting or other measures of active depletion. These means, it is well known, too much depress the action of the heart, and render the nervous matter of the brain more susceptible of the influence of the alcohol, which may have been gradually accumulating in the system. Cold affusion and tartar emetic are the appropriate remedies. The latter seems to act as it very often does in Pneumonia, not, by evidently affecting the action of the heart, but by an influence more direct, and exercised on the deranged capillaries themselves. The combination of tartar emetic and opium and cold affusion, fulfil all the indications of cure in delirium tremens. The opium in moderate doses *calms* the deranged actions of the brain, resulting from the direct influence of the poison (alcohol). The tartar emetic and cold affusion *control* and *moderate* the excessive distribution of blood in the capillaries of the organ. Whereas, opiates in large doses and frequently repeated, with or without stimulants, increase the cerebral congestion, and aim at fulfilling an indication at variance with the principles observed in the treatment of other kinds of poisoning,—in which, freedom from the influence of the foreign agent, once received into the blood, is not looked for till the required time has been allowed for its elimination.

It is, as I have already observed, because there is more of cerebral congestion in the disease as occurring in tropical climates that we must look for the explanation of the superiority of the treatment by tartar emetic, moderate opiates, and cold affusion, and of the hazard of that by free and frequently repeated opiates alone.

In the *treatment* of those forms of Apoplexy and Remittent fever with cerebral complication, allied as we have seen reason to believe to delirium tremens, regard must be chiefly given to the state of the circulation of the brain, recollecting however that free depletion

the deranged distribution of the capillary circulation of the brain and its membranes, which very generally obtains in delirium tremens, is more appropriately designated determination, congestion or inflammation, is really a question of very trivial consequence, so long as we are impressed with the fact that these deranged distributions of the blood, be they called determination or inflammation must be treated differently according to their stages, and the varied circumstances in which they present themselves. Errors of practice are not to be apprehended from the mere application of the term Encephalitis to delirium tremens, unless in the hands of those who are not thoroughly imbued with the fundamental therapeutic principle,—that the indications of cure in inflammations are different in different circumstances, and that it is a practical error of the greatest magnitude to suppose that inflammations are always to be met by general antiphlogistic regimen and treatment.

by bloodletting is for the most part inadmissible and, when adopted, very generally injurious. It is not to be understood that we are absolutely to refrain from the use of bloodletting general or local, but we are to have recourse to them with much caution. We are particularly to regard the fulness or not of the general system, to enquire into the habits of intemperance, with the view of ascertaining whether they are excessive and habitual or only moderate and occasional, and finally particularly to note the duration of the symptoms. When having recourse to bloodletting, in diseases proceeding from long continued habits of intemperance and exposure to the influence of elevated temperature, we must proceed with much caution, and, in all cases of doubt, the pulse should be watched with much care as the blood flows. As a further indication in the treatment of these forms of cerebral disease, the bowels should be moderately acted upon, and the secretions from the liver excited by mild mercurials. But I believe that active purgatives, as croton oil so useful in the cerebral congestions of the robust and temperate, cannot be used without risk of undue collapse from hypercatharsis in the forms of disease of which I now treat.

The remedial means of greatest power in these affections are, I believe, cold affusion frequently repeated, cold applications to the head, and tartar emetic, in frequently repeated doses, not given with the view of exciting nausea or purging, but of exercising its special influence (if I may so term it) on the deranged capillaries of the brain. The avoidance of all excitement of mind and of all attempt to control states of delirium by bonds or strait jackets are also most important considerations in the management of these forms of disease.

When, in the Remittent fevers of the intemperate, there are present delirium and tremors with slight febrile heat and a pulse frequent and compressible, there is, in consequence of the resemblance of these symptoms to those of delirium tremens and of the erroneous views on the treatment of this latter disease by free opiates, often great temptation to give opiates to *overcome* the delirium and to cause sleep. This is, I am convinced, in general a most hazardous and not unfrequently a fatal proceeding.

It may, I believe, be laid down as a practical rule that in all cases of rambling delirium, with slight heat of skin, a pulse from 108 to 120 and of failing strength, enduring for 24 hours, either continuously or with occasional remissions, there is reason to apprehend the accession of coma preceded by convulsions or drowsiness; and we cannot more effectually expedite this unfortunate result, than by giving an opiate or

by having recourse to bloodletting or the injudicious use of purgatives. It no doubt occasionally happens that cases present themselves which are with difficulty to be distinguished from delirium tremens, and in which the expediency of adding opium to the tartar emetic will suggest itself. In these doubtful cases, the opium may be added in small doses and its effect carefully watched.

Before leaving this subdivision of these notes I would observe that it cannot fail to be understood, that, in the remarks which have been made, I have confined myself within very narrow limits—to cerebral disease, the consequence of the conjoined causes *elevated temperature and intemperate habits*. It must not be supposed that the occurrence of cerebral congestion, in previously robust habits in which free depletion by bloodletting and purgatives is the right course of treatment, has been called in question. Nor is it to be doubted that the state of predisposition from impaired energy of the system generally and of the nervous system in particular, assumed in these notes to be an important condition in the derangements we have been considering, may not be brought about by other causes than elevated temperature or habitual intemperance. It is well known that it may be induced by other causes such as bodily fatigue, mental exertion or anxiety, deficient food, an impure atmosphere, malaria, previous disease; and when these causes have been influential, the predisposition resulting from them may lead to modifications in the treatment and management of the consequent diseases. In these we must be guided by the general principles of therapeutics.

Still, two cases remain to be noticed under the present subdivision. One * that of a Midshipman of the Indian Navy, fatal from great congestion of the vessels of the membranes and the substance of the brain. The train of symptoms was unusual, being characterized by a state of general lethargy, a defectiveness of all the functions of the brain, but not complete suspension of any of them. Death took place, after ten days illness, rather in the way of syncope from inanition than from coma. The subject of this case was a young man of stout frame and intemperate habits, who in the month of April had been a good deal exposed to the heat of the sun in the discharge of his duties.

The other † was a case of Colica Pictonum in a Painter of dissipated habits, who had lately been engaged in painting the ship in which he served. He had suffered on former occasions from the

* lx.

† cci.

same disease. The fatal termination was in consequence of convulsions succeeded by drowsiness and coma. Though it be true that when Colica Pictonum terminates fatally, it is generally from the supervention of an epileptic or apoplectic seizure, still it is doubtful whether this is to be held as the true pathology of the present case. The individual was of intemperate habits, and came to the Hospital in a state of intoxication. From the tremors that were present and from the character of the delirium, the probability is that the nervous symptoms were partly from the poison of lead, and partly from that of alcohol. The appearances after death in the abdomen were of interest as regards the colic. Very often in this disease no morbid appearance is to be discovered after death. But in this case, the colon was remarkably distended and variously displaced. There was evidently more of paralysis than of spasm of its muscular fibres.

5.

Bubbles of air in the vessels of the Pia mater or in the Sub-arachnoid tissue.

This appearance has been observed in four * cases of the series. Three proved fatal by coma, in one preceded by convulsions, in the other two by delirium. The fourth case terminated in drowsiness preceded by delirium.

In addition to these four cases, I have the notes of two others. One a soldier of the 1st European Regiment, who came under my observation when I was attached to that Regiment in October 1829. He was the subject of remittent fever complicated with head symptoms and jaundice, which proved fatal after three days illness. Much vascularity of the pia mater, with effusion of lymph between that membrane and the arachnoid, was found after death. It was also noted: "The pia mater was very vascular and could be separated with facility from the convolutions. The large veins were congested with blood and contained much air. The substance of the brain was perhaps softer than natural, and when cut into, the surfaces shewed many bloody points." The other case was of recent occurrence. A Hindoo was admitted into the Jamsetjee Hospital in an advanced stage of remittent fever, complicated with jaundice, which proved fatal by co-

* Transactions No. vi Nos. lxiv. lxix. lxxii. lxxvii.

ma preceded, for two or three days, by drowsiness. Small bubbles of air were found in the sub-arachnoid tissue of the convex surface of the brain, and in some of the vessels of the pia mater. There was not much congestion of the vessels, but serous effusion existed between the arachnoid and pia mater at the posterior and descending parts of the brain.

In two of these six cases, the body was examined 5 hours after death, in one after 7 hours, in one after 14 hours, in one after 18 hours, and in one the time is not specified.

These are the only instances, in the examination of bodies after death, in which the appearance of bubbles of air in the vessels of the pia mater or sub-arachnoid tissue has been noted by me; and, from the circumstance of my attention having been called to this condition so far back as the year 1829, I do not think that I could have failed to have noticed the appearance, had it presented itself to me in other cases than these.

In all, well marked head symptoms were present, and death was preceded by coma or drowsiness.

The true nature and import of this appearance would seem not as yet to be determined, and I am not aware whether the cases recorded by me are calculated in any respect to elucidate it; for I have not, at present, the opportunity of referring to all that has been written on this subject * by different Pathologists.

* Dr. Bright thus alludes to the subject "*Air in the vessels*. It is by no means uncommon to see a few bubbles of air in the large vessels of the pia mater immediately as the calvaria is removed; but it is probable that it has either found its way in during the operation of opening the head, or that the air has been entirely generated after death."

Report of Medical Cases, vol. ii. Part ii. p. 668.

In Vogel's. *Pathological Anatomy* it is observed, "Gas may likewise be developed by the constituents of the animal body either during life or after death. Its occurrence during life is not very rare; it takes place in putrid fevers, in typhus and gangrene. Gas is most commonly evolved from the animal fluids, especially from the blood, when before undergoing any chemical decomposition, it is arrested in different parts of the body, and purification by respiration and secretion thus impeded, when certain secretions as the biliary and urinary are checked and their constituents remain in the blood.

Pathological Anatomy, by Julius Vogel. M. D. translated by George E. Day. p. 29.

6

Inflammation of the Pia mater and Arachnoid (Meningitis) marked by opacity and thickening of these membranes, or by Deposits of lymph or by Serous effusion containing flaky floculi.

There are 11 * cases in the series which may be classed under this head; 2 occurred in Seamen, 2 in Engineers of the Steam Department, 1 in a Serjeant of the Garrison, 1 in a Pensioned Soldier, 1 in a Tavern keeper, 1 in a Boy of the Byculla schools, and of 3 the occupations are not noted. These cases presented themselves in the following months.

March 1, April 1, May 1, June 2, August 2, September 1, October 1, November 1, December 1. Total 11.

I shall first advert to cases of milky opacity with thickening of the arachnoid of the convex surface of the brain, associated generally with more or less serous effusion and increased vascularity of the pia mater, and in all probability to be attributed to habitual intemperance, with or without distinct attacks of delirium tremens.

Of this description there are certainly three† cases, and probably two others.‡ This state of milky opacity and thickening of the arachnoid is in all probability a result of slow inflammatory action, and a relation between these appearances and habits of intemperance has been noted by many observers. This fact would seem to justify the opinion that inflammation is not an unusual consequence of the action of alcohol on the membranes of the brain, and that it constitutes part of the pathology of delirium tremens. It is not difficult to understand why inflammatory action, arising under these circumstances, is not followed by the results or attended by the phenomena which characterize ordinary inflammation of the same tissue. It is inflammation excited by a special cause—a particular poison—and after a time ceasing on the elimination of the poison and leading to cognizable changes of structure, only under circumstances of frequent recurrence. Under this view of the influence of habitual intemperance on the membranes of the brain, it is not improbable that much of the proclivity to cerebral disease in the intemperate, from ordinary exciting causes, or as a complication of idiopathic fevers,

* Transactions. Nos. ii vi vii. Nos. i. ii. xxviii lxviii lxxiii. lxxiv lxxv. lxxvi xcv. clvii. ccii.

† Nos. xcv. clvii. & ccii.

‡ Nos. lxxiii lxxiv.

may depend on a predisposition, the consequence of structural change—opacity and thickening of the membranes of the brain.

I shall allude shortly to the leading circumstances of the five cases at present under consideration, confining myself to those chiefly which relate to the opaque and thickened state of the arachnoid.

No. xcv. An Engineer of 40 years of age, of very dissipated habits, brought under treatment for dysentery, was affected with frequent febrile exacerbations and great depression of spirits.

No. clvii. A Serjeant of 46 years of age, of very dissipated habits, was, after excesses in drinking, admitted into Hospital ill with acute dysentery. While under treatment, symptoms of delirium tremens came on. The pupils were contracted, he became drowsy and died three days after admission without convulsion or much coma.

No. ccii. An Engineer, aged 37, of corpulent frame and dissipated habits, who had served 10 years in the West Indies and 10 months in Bombay. He was affected with oppressed breathing, restlessness, vomiting and purging, and commencing jaundice. He died comatose, on the second day after admission into Hospital.

This was a very remarkable case from the number and extent of the structural changes of important organs. The arachnoid was opaque and much thickened, the arteries, at the base of the brain, thickened from ossific deposit, the left ventricle of the heart was hypertrophied and dilated, and the lower lobe of the right lung was in a state of red hepatization. The abdominal cavity was loaded with fat, the intestines contracted, the liver was in a state of cirrhosis, and the kidneys were converted into groups of cysts of different sizes.

No. lxxiii. A Tavern-keeper, 33 years of age, of stout frame, was reported to have been affected with quotidian fever for six days before he presented himself for treatment at the Hospital. When admitted he had pyrexia with slight wandering, and a frequent and feeble pulse. A few hours afterwards he was seized with convulsions and died.

I shall again allude to this case, with reference to the treatment that was followed.

No. lxxiv. A Seaman of 28 years of age, had been ill for two or three days with intermittent fever before he came under treatment. On the day of admission (24th March) he had fever with headache. On the 25th neither fever nor headache; on the 26th was seized with a convulsive fit; on the 27th was free of fever and headache. On the 28th was affected twice with convulsions; on the

29th towards evening there was a slight febrile accession, but he slept well. On the morning of the 30th, again a convulsive fit followed by death in a few minutes.

In my "Notes on the treatment of Intermittent and Remittent Fever" as observed in Bombay, published in the 6th number of the Society's Transactions, I endeavoured to explain the circumstances of remittent fever in which a full dose of Muriate of Morphia, after the first or second exacerbation of fever, might, with certain precautions, often be given with very great* advantage. I, however at the same† time, took care to state that there were often symptoms, in some respects analogous, which occurring in the more advanced stages of fever, instead of indicating the use of opium—rendered its exhibition a measure attended with great hazard. When these remarks were written, one of the cases (lxxiii) just alluded to was particularly held in view. The subject of this case was admitted into Hospital with febrile symptoms, attended with slight delirium. The pulse was frequent. 24 leeches were applied to the temples, and cold cloths to the head. A foot bath was directed to be used and a draught of Tinct. Muriat. Morph. ʒi to be given, should the headache have ceased, and there be no wandering delirium. The headache and delirium were reported to have been removed by the leeches and the skin to have become cool. The opiate was given. He was reported to have got up from bed shortly afterwards, and to have fallen down convulsed. He died comatose half an hour afterwards.

In the paper to which I have already alluded the circumstances of remittent fever, under which a full opiate may be given with advantage, are explained. I have nothing now to add in correction or modification of these statements. Certain cautions were also given in regard to the use of opiates in other conditions of remittent fever. Further experience has confirmed in my mind the correctness of these cautions, and has convinced me of the expediency of urging them at somewhat greater length. It is true that this error in practice is not likely to take place in cases of fever carefully watched and treated from their commencement. But in those submitted to observation for the first time, in their advanced stages, and introduced with an imperfect or inaccurate narrative, I know from experience that it is a very possible occurrence, even in the hands of those whose attention has been fully awakened to this point of practice. I shall

* Transactions Medical and Physical Society No. vi. p. 182

† Transactions Medical and Physical Society No. vi. p. 203

now endeavour to explain the conditions of remittent fever which seem to me to be those which render the exhibition of a full opiate a hazardous proceeding.

1st. I assume that opiates in remittent fever are only thought of, when there is restlessness and want of sleep, and that they can only be used with safety in the early stage, when there are not any symptoms of marked determination to the brain, and when the pulse is of good volume and soft and not much above 100.

2nd. When remittent fever has endured for six or seven days, each recurring exacerbation is attended with an increasing frequency and decreasing strength of the pulse. This depression of the heart's action is most observable towards the close of the paroxysm, and is not unfrequently attended with general restlessness. When so, the temptation to give an opiate is often great, in the hope that sleep and its consequent advantages may be secured. But, under such circumstances, it is, I believe, always a hazardous proceeding. A pulse that ranges towards 120, or one not so frequent, but feeble, and compressible; or still more, a pulse that has the frequency of 120 and is at the same time feeble and compressible, are conditions which may be held as contra-indicating the use of a full opiate, even though they should not be associated with headache, wandering delirium or tendency to drowsiness. Nor is it difficult to understand why this should be. These conditions of the pulse indicate that the tendency to death is by syncope, a tendency sure to be most marked towards the close of the paroxysm, and to increase with each returning accession of fever. In this depressed state of the heart's action, the functions of the brain also tend to be defective, and, under the influence of a full opiate, are not unlikely to be suspended. In other words, the opiate is likely to induce coma, and its depressing influence on the brain, acting through the nervous system, still further depresses the action of the heart; and thus, under these circumstances, an opiate injudiciously given favours death both in the way of syncope and coma.

3rd. As yet I have assumed no derangement of the brain itself. But in a great proportion of cases of remittent fever, of six or seven days duration, the earlier exacerbations are marked by flushing and headache, the later ones by slight wandering or tendency to drowsiness. This state of the cerebral functions, *whatever the state of the pulse may be*, contra-indicates the use of opium. In such cases of fever the tendency to death is by coma. If the opiate be given at the close of the earlier paroxysms, it may only increase the restless-

ness ; but if it be given at the close of the later paroxysms, when wandering or tendency to drowsiness are present, it will most surely expedite the supervention of coma. It ought to be most scrupulously abstained from.

4th. But in those cases of remittent fever in which the wandering delirium or the drowsiness of the later paroxysms shew a tendency to death by coma, there is also, most generally speaking, a frequent and failing pulse. Whenever an exacerbation of remittent fever has been attended with wandering or delirium or a tendency to drowsiness, and terminates with a quick and feeble pulse—it may be inferred with tolerable certainty, that a fatal termination by coma is not far distant, is only to be warded off by the most judicious management, and is most certain to be hurried on if we commit the grievous error of attempting, under these circumstances, to lessen the delirium and restlessness by the exhibition of opium. To conclude then, whenever in remittent fever the pulse is towards 120, feeble and compressible ; whenever there is wandering delirium, or slight drowsiness, the exhibition of a full opiate is a measure of danger, more particularly towards the close of a febrile exacerbation. In other words, whenever in remittent fever the tendency to death by asthenia or by coma is well marked,* a full opiate will expedite the fatal result.

Of the cases of milky opacity and thickening of the arachnoid No. lxxiv is also one calculated to suggest practical reflections of interest. A seaman, the subject of intermittent fever for two or three days before admission into Hospital, had afterwards recurrences of the tertian type, and the paroxysms were complicated by distinct convulsions. These convulsive attacks were only observed at the periods of tertian febrile accession, and the fatal result followed one of them.

It is stated by systematic writers that convulsion is an occasional concomitant of the febrile accession of Intermittent fever. The case, just adverted to, is the only instance in which, according to my present recollection, I have ever witnessed this complication. The probable explanation of its pathology in this instance was that the

* I need hardly observe that, in these remarks, I refer exclusively to opiates given with the intention of, and in doses calculated to produce the soporific action of the drug. Whether opiates given in small doses with a view to their stimulant effects, may or may not be admissible in some of the states of fever adverted to by me, is a question altogether apart from my present subject, and one in regard to which I wish it to be understood that I express no opinion.

opacity of the arachnoid, in all likelihood caused by habits of intemperance, existed prior to the invasion of the intermittent fever, did not, in ordinary states of the circulation, occasion deranged action of the brain, but did so under the accelerated circulation of the febrile accession. If this explanation be admitted it bears practically on the following points.

1st. It substantiates a statement previously made by me, that occasionally the head symptoms in intermittent and remittent fever may be traced to structural change of the contents of the cranium, consequent on the slow influence of habits of intemperance.

2nd. It shews that slight structural changes which, in ordinary states of the circulation, do not cause derangement of function, may do so when the circulation is excited.

3rd. It explains how it not unfrequently happens, that head symptoms e. g. headache, epileptic seizures, which have depended, as shewn by the result, on organic disease may be characterized by well marked intermissions, often for considerable intervals; and leads to the inference that we are not justified in too confidently supposing, from the mere circumstance of occasional alleviation, that the symptoms are caused by functional and not by organic disease.*

4th. Symptoms depending on structural disease, absent during the intermission of tertian fever, but present during the febrile paroxysm, plainly confirm the propriety of the practical rule,—that inflammatory complications of intermittent or remittent fever, instead of contra-indicating the use of Quinine, are an additional reason why it should be had recourse to, with the view of preventing the febrile accession and the necessary exacerbation of the inflammatory action.

5th. If structural changes, quiescent under ordinary states of the circulation, give rise to symptoms when the capillary circulation becomes increased consequent on excitement of the heart's action—it indicates the advantage to be derived from the occasional use of local bloodletting, from quiescence, as far as practicable, of the organ; and it explains how under such circumstances we may have removal for a time of all symptoms and yet persistence of the structural lesion.

Of the eleven cases classed under the present head, there are

* These are well known facts; I have the notes of several cases in which head symptoms were present and in which from the intervals of alleviation, the hope was indulged that the disease was functional, but which ultimately proved to have been caused by organic disease.

still four* in which the opacity and the thickening of the arachnoid membrane was the principal lesion within the cranium, but in which the probable relation of this condition to habits of intemperance was not apparent. I shall notice these cases shortly.

No. xxviii. A man of spare habit, of 38 years of age, whose occupation is not noted, was, when admitted into Hospital, unable to give a clear account of his history. He was deaf, articulated indistinctly, complained of vertigo with a constant singing noise in the ears. Suffering more or less from these symptoms he continued for upwards of two months, when tenderness of abdomen, attended with slight diarrhoea, was complained of and there was distinct fulness to the right of the epigastrium, accompanied with tenderness. He died about 20 days after the development of these latter symptoms. Besides the opacity of the arachnoid and serous effusion into the cavity of the cranium, there were found after death the evidences of general peritonitis and an abscess in the liver.

No. lxxv. 16 years of age was admitted into Hospital after a week's suffering from febrile symptoms and headache. The fever was remittent in type, the face was flushed, the manner was undecided and unsteady. Typhoid symptoms became well marked, and in twelve days after admission, drowsiness came on and continued for three days, when he died. The arachnoid membrane was opaque and thickened with here and there imbedded rounded granules of lymph the size of a pin's head.

From the slow progress of this case and the appearances found after death, it may be inferred that the inflammatory action was somewhat scrofulous in character.

No. lxxvi. A Seaman 32 years of age was received into the Hospital on the evening of the 5th June after twelve hours illness from spasmodic cholera. The state of collapse was considerable. During the 6th and 7th, the watery purging was still occasional but the pulse improved. On the 8th it was observed that the mild mercurial, which he had been taking, had slightly affected the gums, and on the evening of that day there was a want of alertness of manner. On the 9th the defective secretion of urine would seem to have been first noted; though no doubt it was present before this period. During the 10th, 11th and 12th the drowsiness was increased. The tongue became dry in the centre, and there was occasional vomiting and hiccup and the excretions from the bowels were scanty. The

† Nos. xxviii. lxxviii. lxxv. lxxvi.

pulse and skin were not much affected. Urine was secreted, but required to be drawn off by the catheter. On the 13th and 14th the drowsiness increased with muttering delirium, and death took place on the 15th.

No lxxiii Of 32 years of age was under treatment for spasmodic cholera, from the 26th to the 29th October, and was discharged, on the latter day, well but weak. Was re-admitted on the 2nd of November, affected with diarrhœa and tremor, after having been drinking to excess in the bazaar. He was restless during the day, and the skin was coldish and the pulse feeble. On the morning of the 3rd he was comatose and sunk rapidly.

I have classed this case with those not related to intemperance, because the probability is that the opaque state of the arachnoid had more relation to the preceding attack of cholera. It was more analogous to case lxxvi than to those arranged in the former class.

Of the four cases just alluded to, probably two (lxxvi. lxxiii) but certainly one (lxxvi) was meningitis consecutive on an attack of epidemic cholera. In this case the secretion of urine, probably that of bile also, was never fairly re-established. To this circumstance, in all likelihood, is to be attributed the secondary inflammations which arise in cases of cholera in which there has been reaction after the collapse, but not restoration of the excretions and return to health.

The inflammations of gout, of rheumatism, of the eruptive fevers, perhaps of erysipelas, also those arising in the course of Bright's disease, probably depend on noxious agencies retained in the blood, or received into it from without, and may be looked upon as processes of elimination. May not the secondary inflammations in cholera be viewed as illustrative of the same pathological law?

Of the 34 cases included in the 3rd and 4th subdivisions, there were five fatal cases of epidemic cholera, in which there was drowsiness during life, and congestion of the vessels of the membranes of the brain, with increased serous effusion, after death. Of these, it was observed that notice would be taken in connection with cases of cholera fatal with thickening and opacity of the arachnoid.

Of these five cases, one proved fatal after about 12 hours illness, two after 18 hours, one after 48 hours, and one after 60 hours. Under Division iii. of this paper, reference will be made to 13 fatal cases of epidemic cholera, in which there was congestion of the membranes and substance of the brain, with more or less serous effusion, but no head symptoms. Excluding one case which was rather serous diarrhœa in a tubercular subject than cholera,—the following statement

exhibits an approximative estimate of the duration of the disease in the remaning 12 cases.

Above 8 hours but not above 12	7
Above 12 do. but not above 18	3
24 hours	1
Period not stated	1
	<hr/>
	12

That the functions of the sensorium should continue in tolerable integrity, while so many other important functions are suspended, and while the vessels of the nervous matter of the brain are congested with dark coloured tarry looking blood, is certainly not the least incomprehensible part of this extraordinary disease.

It is not improbable that, in those cases of epidemic cholera of less than 18 hours duration, in which marked drowsiness is present and no evidence of reaction, we shall generally find reason to attribute the head symptoms to a too free exhibition of opiates and stimulants. But, that in cases of 36 hours' duration and upwards, more especially if there has been attempt at reaction, the head symptoms may with more likelihood be regarded as proceeding from retained excretions—not leading, in those fatal in 48 or 60 hours to other morbid appearances than the congestion and serous effusion, which have probably been present from a very early stage of the attack—but in those enduring for a longer time, leading, in the manner already explained, to inflammation, opacity and thickening of the arachnoid and pia mater. If the view now taken of the pathology of the head symptoms, arising in cases of cholera in which there has been more or less reaction from the stage of collapse—i. e. their relation to retained excretions, be correct, then it is evident that a main indication in the treatment, under these conditions, ought to be to excite to free excretion; and, if time be not lost, we may hope to do so with good effect, because there is reason to believe that at the period of development of the head symptoms and perhaps for 12 or 18 hours afterwards, there is not any inflammatory action present. Indeed, we cannot have inflammation of the membranes of the brain leading to thickening, till the circulation of the blood has been some time re-established.

Whatever may be thought of these pathological opinions, it must I believe accord with the experience of others, as it certainly does with my own, to have observed, that this is the stage of epidemic cholera, and these the conditions in which the exhibition of a full dose

of calomel is often attended with very marked influence on the course of the disease.

To give calomel in ten grain or scruple doses, during the stage of collapse and serous purging, in the hope I suppose of exciting the secretory function of the liver, is, to say the least, a vain expectation. In those cases in which there is gradual restoration of the circulation and secretions without any untoward symptoms, calomel in large doses is quite unnecessary. Blue pill, with quinine and effervescing draughts, is quite sufficient. But in those cases of which we now treat, in which after a longer stage of collapse, there is restoration more or less of the circulation, but a very imperfect restoration of the secretions. In these, slowness of the pulse, vascularity of the conjunctiva, a want of alertness of manner may, if neglected, be looked upon as the certain preludes of death by coma. But, I believe that cases of this kind may not unfrequently be relieved from this state of peril, if these symptoms have been early observed and rightly interpreted, and met by the exhibition of calomel in ten grain doses once or twice repeated, and followed by small doses of castor oil, the use of saline diuretics with effervescing draughts, and the application of a blister to the nucha.

There still remain two cases to be noticed under this head, and they are better marked instances of meningitis than those to which reference has already been made.

No. ii. A pensioned soldier of 38 years of age, of spare frame and intemperate habits, had suffered much from mental anxiety, and at different times had been under treatment for delirium tremens. After four days illness he was admitted into Hospital, complaining of pain of the temples and occiput, which stretched down the neck to the shoulders. Then succeeded a feeble pulse, tremulous hands, an excited manner, a flushed countenance, cessation of pain, muttering delirium, tendency to drowsiness, indistinct articulation, slight twisting of the mouth, thready, frequent pulse, and death on the 4th day without complete coma. Throughout his illness little or no increased heat of skin was observed.

On examination after death the vessels of the pia mater of the upper surface of the brain were tinged with blood. The arachnoid was thickened and milky, and serum with flaky flocculi was effused between it and the pia mater. The lateral ventricles were also distended with serum which contained flakes of lymph. There was abundant effusion of lymph between the arachnoid and pia mater over the base

of the brain and extending down the spinal cord, and at the posterior part of the choroid plexus of both sides there was a fringe of vesicular like bodies. The incised surface of the cerebral substance was of pinkish colour and showed many bloody points.

In this case then as regards the morbid appearances, the proofs of extensive meningitis were very marked. Yet, the head symptoms during life, were not very different from those which we have found in other instances to have depended on slight and not appreciable morbid changes. There was, it is true, more pain complained of in this case, and there was a very marked relation between the situation of the pain (the occiput and the neck) and the effused lymph found after death—over the base of the brain and extending down the spinal cord. The medulla oblongata was covered by a thick layer of lymph, and yet there were no symptoms of impairment of the functions of that nervous centre.

No. i. A boy of the Byculla Schools, of 7 years of age, had been under treatment for four days for febrile symptoms, which had not excited much attention or given occasion for apprehension. The febrile symptoms increased and were attended with a tendency to drowsiness. This state persisted two days, when there succeeded frequent screaming and moanings, trismus and dilated pupils. The head was frequently raised from the pillow and moved about slowly as if in search of some object. The pulse became very frequent and feeble. Complete coma ensued and death took place on the 8th day from the commencement of his illness.

After death the pia mater was found to be vascular and the arachnoid milky and thickened, and serum was effused between it and the pia mater on the superior and posterior parts of the hemispheres. There was a considerable quantity of serum at the base of the skull and in the ventricles, and a good deal of granular deposit connected the layers of the arachnoid at the dipping down of the falx cerebri. From the age of the subject of this case, the character of the symptoms, the serous effusion, the granular lymphic deposit, it would in all probability have been more accurately designated “acute hydrocephalus” than “meningitis.”

During the four years that I held medical charge of the Byculla Schools, the number of children was about 235, and with exception of 25, the age of the children ranged from 5 to 15, yet the case just narrated is the only one allied to Hydrocephalus which presented itself to my notice. During the eight years that have elapsed since the medi-

cal charge of these schools has passed into other hands, and during which there has been a considerable increase in the number of children, the only other case presenting symptoms of Hydrocephalus which has come to my knowledge, is one which presented itself to Dr. Carter who has kindly favoured me with a detailed statement of the symptoms and the morbid appearances found after death.

A Boy, 12 years of age, after being under treatment with febrile symptoms from the 8th to 23rd August 1848, complained of pain increased by pressure at the margin of the right ribs. On the 26th, he complained of headache, became drowsy, screamed occasionally. On the 27th and 28th there was more or less delirium, there was drowsiness, slight strabismus, impaired vision, and a pulse ranging from 68 to 80, and a remission of febrile heat of skin. During the 29th, 30th and 31st the drowsiness increased, the heat of skin was more marked, the pulse became very frequent and lost strength, and he died comatose on the 1st of September.

After death the arachnoid membrane over the hemispheres of the brain presented rather an opaque appearance, it had also, where investing the cerebellum, an opaque lymphic almost puriform appearance, and was much thickened at the base of the brain. The lateral ventricles were much distended with serum, and the cerebral substance in contact with the ventricles was softened. The fourth ventricle was also much distended, and the membranes about it and around the spinal cord were opaque. The peritoneal surface of the liver was opaque and studded chiefly at its lower edges with granular lymphic deposit.

The serous effusion, the softening of the central part of the brain, the granular lymphic deposit of the arachnoid, associated with similar deposit on the peritoneal covering of the liver, clearly mark this to have been an instance of that scrofulous inflammation of the membranes and substance of the brain, which constitutes the disease "Acute Hydrocephalus."

Thus, then, it would seem that in Bombay during 12 years, in a body of children in number from 255 to 350, partly Indo-British and partly descended of European parents, and the greater number ranging in age from 5 to 15, only 2 cases of Hydrocephalus have been observed. How far this result is in accordance with, or different from, that which is usually observed under similar circumstances in other countries I am unable to say, nor does it accord with my present* object to enter into such an enquiry.

* In regard to the 8 years during which I did not hold medical charge of the Byculla Schools, my statement must be looked upon as an accurate approximation to the truth.

7

Inflammation of the Substance of the Brain, marked by Suppuration or Softening.

Under this subdivision there are only two cases in the series.

No. x. A Boilermaker of stout habit, 33 years of age, who had lately arrived in India. For five days before admission into Hospital on the 9th August he had suffered from pain of head, of right hypochondrium and of limbs; but the pain of the side was that of which he chiefly complained. He was somewhat deaf, and his manner was slow and undecided, and his hands were frequently tremulous, his spirits depressed and the pulse easily excited.

On the 1st September there was marked fulness of the right hypochondrium and crepitus in the lower part of the right side of the chest. On the 16th he became drowsy and died.

In the anterior and middle lobe of the right hemisphere of the brain, there was an abscess of considerable size and the surrounding substance of the brain was softened.

There was an abscess of the liver and the 3rd lobe of the right lung was hepatized.

Nos. lxxix. An African of 24 years of age was admitted into Hospital on the 2d. September after a month's illness. He suffered from a mild attack of dysentery, and was discharged on the 9th October, and re-admitted on the 19th, ill with quotidian fever. He was again discharged on the 1st November and re-admitted on the 24th, affected with irregular febrile accessions. On the 20th De-

A reference to the Returns and Registers of disease of the Schools for this period does not show any fatal case referable to Hydrocephalus. I have referred to two of the Medical Officers who have been in medical charge of the Schools during the period adverted to. Dr. Leith in reply observes, "I am certain I did not see a case of acute Hydrocephalus in the Byculla Schools," and Dr. Coles states, "I do not recollect any case of any description of Hydrocephalus happening whilst I was in attendance in the Schools." Dr. Graham who has also been in charge of the Schools during this period, has returned to England and I am unable to make a similar reference to him.

The question of the comparative greater or less degree of prevalence of acute Hydrocephalus in the children of these Schools, is probably part of a more general question of the degree of prevalence of the strumous diathesis. I do not know what might be the result of the application of the test suggested by Mr. Phillips in his work on Scrofula viz. "Enlarged cervical glands discoverable by touch," but I believe that I am correct in saying that scrofulous joints, suppurating lymphatic or mesenteric disease, are of unfrequent occurrence. On the other hand, if the history of these children be traced after they have grown up and left the Schools, it will be found that Phthisis pulmonalis is a cause of death sufficiently common. I can bring to my recollection several cases in proof of this.

cember he had diarrhœa and cramps of the limbs. On the 21st the right arm and leg were weak, and on the 22nd there was complete hemiplegia of that side with occasional twitching of the arm. There was heat of skin with increasing emaciation; no headache. He continued, with generally an evening febrile accession, till the 28th, when he died.

The arachnoid membrane was opaque and thickened, and in the left hemisphere of the brain, above the lateral ventricle, there was an abscess the size of a large walnut filled with pus and surrounded by a pulpy state of the cerebral substance.

8

Morbid growths,—Tumours within the Cranium.

There is only one case of the series which can be classed under this head.

No. lxxx. A seaman of 25 years of age was admitted into Hospital, affected with complete amaurosis of both eyes, also pain of the right side of the head, fixed at the temple and shooting in different directions. He was somewhat emaciated, and stated that about fifteen months before admission he became affected with headache and had continued subject to it ever since, that 7 months ago the pain was confined to the left temple and was followed by amaurosis of the left eye, that whilst at sea two months before admission the pain affected the right side of the head, and was succeeded by amaurosis of the right eye about a fortnight before admission. He was 19 months in Hospital, when he died. During the first month or two there was more or less pain of head, but during the greater part of his residence he was in a fatuous state, and made little complaint. On two occasions he experienced convulsive fits followed by sopor, and twice extensive sloughing ulcers formed on the sacrum. Some days before his death he lay in a drowsy state with twitching movements of the fingers and he refused all food.

The lower part of the anterior lobes and the anterior part of the middle lobes adhered to the calvaria, and were separated from it with difficulty. The brain in these sites, but chiefly in the anterior part of the middle lobe of the left side, was in a very pulpy state and in the latter site there was imbedded a tumor the size of a small walnut, partly schirrous and partly tubercular in its character.

II

CASES IN WHICH WELL MARKED HEAD SYMPTOMS DURING LIFE WERE NOTED ; BUT IN WHICH NO MORBID APPEARANCES IN THE CONTENTS OF THE CRANIUM WERE DISCOVERED AFTER DEATH.

Of the 59 cases in the series in which head symptoms during life were well marked, there is only one recorded in which there was an absence of all morbid appearances after death.

No. iii A seaman, of stout habit and of 20 years of age, was admitted into Hospital after five days illness with fever, and he died comatose on the 5th day after admission. The type of the fever was remittent, he complained of occasional headache, his manner was sluggish, and he passed restless nights.

On examination of the body after death there was no increased vascularity of the membranes or substance of the brain observed, and there was not above four drachms of serum at the base of the skull, and a drachm in the ventricles.

III

CASES IN WHICH THERE WERE NO HEAD SYMPTOMS DURING LIFE, BUT IN WHICH APPEARANCES IN THE CONTENTS OF THE CRANIUM, GENERALLY CONSIDERED MORBID, WERE OBSERVED AFTER DEATH.

The fatal cases of disease detailed by me in the 2d, 6th, and 7th Nos. of the Society's Transactions amount to 205.

Of these there are 50* in which there were not head Symptoms present during life, but in which appearances in the contents of the cranium, generally considered morbid, were observed after death.

* Transactions. No. ii. Nos.—xvi. xxiii. xxiv. xxv. xxvi. xxvii. xxix. xxxv. xxxviii. xxxix. xl.xliii.

Transactions. No. vi.—lxxxi. lxxxiii. lxxxvii xcii. xciv. xcvii xcviii. cv. cvi. cviii.

Transactions. No. vii.—cxvii. cxviii. cxxv. cxxix. cxxx. cxxxii. cxlix. clii. cliv. clv. clviii. clxii. clxiii. clxxviii. clxxix clxxx. clxxxiii. clxxxiv. clxxxvi. clxxxvii. cxc. xcxi. cxcliii cxcliv. cxcv. cxevi. cxeviii. cciv.

Of these 50 cases, the ages of the individuals were as follows :—

<i>Between</i> —10 and 15 years.....	2
16 and 20 inclusive	4
21 and 25	14
26 and 30	7
31 and 35	7
36 and 40	2
41 and 50	7
51 and 60	4
61 and 70.....	1
Ages not given	2
	—
	50

The deaths took place in the following months :—

January.....	4	July.....	3
February ...	5	August	4
March	6	September	4
April	5	October	1
May	6	November	2
June	2	December	4
	—		—
	28		18

Months not stated

4

Of the 50 cases under consideration the deaths were occasioned by the following diseases :—

Tubercular Phthisis ..	7 *
Pleuritis	1 †
Disease of the Heart ..	1 ‡
Hepatic abscess	8 §
Dysentery	11 ||
Peritonitis	4 ¶
Scurvy	3 **
Spasmodic Cholera....	14 ††
Rupture of the Spleen ..	1 ††

50

* Nos. xvi. xxv. lxxxi. lxxxiii. lxxxvii xcii. xciv. † No. xcvii. ‡ No. cviii

§ Nos. xxix. cxvii. cxviii cxv. cxxix. cxxx. cxxxii. cxlix

|| Nos. xxxv. xxxviii xxxix xl. xliii. clii. cliv. clv. clviii. clxii. clxiii.

¶ Nos. xxiii. xxiv. xxvi. xxvii. ** Nos. xcviii. cvi. cv.

†† Nos. clxxviii. clxxix. clxxx. clxxxiii. clxxxiv. clxxxvi. clxxxvii. cxc. cxci. cxclii
cxci. cxev. cxevi. cxeviii. †† No. cciv.

In 4 of the 50 cases, the morbid appearance consisted of increased vascularity of the membranes of the brain. These were all cases of Epidemic Cholera.

In 19 cases—there were both increased vascularity and increased serous effusion within the cranium. Death took place from the following diseases.

Epidemic Cholera	9
Disease of the Heart ..	1
Dysentery	4
Peritonitis	2
Hepatic abscess	2
Gastro—Enteritis.	1

19

In 27 cases—there was increased serous effusion within the cranium, without increased vascularity.

Death in these instances was caused by the following diseases :—

Tubercular Phthisis.....	7
Hepatic abscess	6
Dysentery	6
Peritonitis.....	2
Epidemic Cholera	1
Pleuritis	1
Rupture of the Spleen	1
Scurvy	2
Rheumatism (Scorbutic).....	1

27

In regard to the facts which have just been stated, it may be observed,

1st. They do not shew any relation between absence of head symptoms, associated with increased vascularity and serous effusion within the cranium, and particular age or season.

2nd. They shew a relation between absence of head symptoms, associated with increased vascularity with or without increased serous effusion within the cranium, and a state of general venous congestion—dependent upon a feebly acting heart.

3rd. They shew a relation between absence of head symptoms, associated with increased serous effusion without increased vascularity within the cranium, and death taking place by gradual asthenia. When death takes place after this manner, serous transudations, from

serous linings and into areolar tissue, are familiar facts. The cerebral serous effusion, to which allusion is now made, is but one of these.

4th. The increased vascularity in these cases is that of congestion, not of inflammation. The increased serous effusion is not the result of inflammation, but of congestion, and those conditions of the tissue and of the *blood*, which are believed to favor serous transudation.

They confirm therefore that opinion of Dr. Abercrombie—that the head symptoms of Acute Hydrocephalus do not depend upon the presence of serous effusion within the cranium, so much as on the deranged capillary circulation (inflammation) of which the serous effusion is the consequence.

The serous effusion in the cases of which I now treat, was not the result of *this* deranged state of the capillary circulation (inflammation); hence, though present within the cranium, head symptoms were not necessarily induced by it.

5th. It should be borne in mind that the increased vascularity and serous effusion within the cranium, found after death, does not necessarily prove their presence there during life. They may have taken place in some instances during the agony of death, or after its occurrence.

6th These facts which shew want of relation between increased vascularity and serous effusion within the cranium, found after death, and the cause of the fatal result, should be borne in mind in judicial enquiries on bodies found dead, and of the previous history of which nothing is known. *In such cases, if there be present within the cranium only increased vascularity or increased serous effusion separately or associated together, we can never be justified in attributing death to these conditions.* The statements which have been made under this division, have been entered into, because they tend to confirm observations of a similar tenor to be found in the writings of * LOUIS, † ABERCROMBIE and ‡ BBIGHT, and they are of much importance in relation to the Pathology of the Brain.

* Researches on Phthisis. † On Diseases of the Brain. ‡ Reports of Medical Cases.

ARTICLE VI.

*Official Report on the Hospital of H. H. the Raja of Satara for the year 1844, 1845, 1846, and 1847; with Notes on the Climate and Diseases of Satara.** By J. Murray Esq. Surgeon on special duty under the Resident at Satara.

Presented by Government.

At the close of the fourth year of my present charge, I am desirous of laying before you† a somewhat fuller account of the operations of the Satara Hospital during the last four years, than is contained in the annual Abstract Returns previously furnished. My chief object is by a simple statement of actual results, unencumbered by any medical details, to show the exact progress which has been made in carrying out the original design of the institution, and to submit, for your consideration, such suggestions as seem calculated to extend its usefulness. Some cursory remarks on the climate and diseases of Satara, so far as they have come under my observation in the course of my duties, will form the subject of a separate paper, to be appended to this report.

2. The principal objects contemplated by His Highness the Raja of Satara, in the establishment of a Hospital at his Capital, are stated by Colonel Ovans (in his letter to Mr. Secretary Willoughby of the 28th November 1839) to have been the supply of gratuitous medical advice to the poorer classes of his subjects, the instruction of his people in medical science, and the extension of vaccination

* It seems proper to state, that the following report was written in the ordinary course of official duty, without any view to publication, and was intended to embody the *General*, not the *Medical Statistics* of the Hospital. In revising it for the press, I have added a few explanatory foot notes, and have appended a few Medical tables extracted from the records of the Hospital.

† NOTE.—By the Secretary. This Report was addressed to the Resident.

throughout his country.* To give effect to these several objects, the institution comprises the following departments :

1st. A MILITARY Hospital for the sick of His Highness' Infantry Regiment and Artillery,† and for such of the Irregular Troops and their followers as may apply for admission.

2nd. A GENERAL Hospital for the reception of sick natives of all classes who may resort to it, and who are also subsisted free of expense.

3rd. A DISPENSARY attached to the Hospital, for the benefit of out patients, who are supplied with medicine and advice.

4th. A ward in the JAIL for the medical treatment of sick prisoners.

5th. An establishment for the introduction of VACCINATION throughout the Satara territory.

3. With these few explanatory observations, I proceed to notice the progress which has been made in carrying out these several objects, during the last four years, under the following heads:—

1. Hospital patients ; 2. Dispensary patients ; 3. Vaccination ; 4. Medical instruction.

4. The total numbers admitted into Hospital, during each of the years under review, have been as follows :—

In	1844.....	331
"	1845.....	519
"	1846.....	703
"	1847.....	815

Total.. 2,368

This shews a progressive increase of Hospital patients in each of the four years, and an increase of about 150 per cent on the whole period. They have consisted of the following classes:—

	1844.	1845	1846	1847	Total.
Military.....	261	367	368	440	1436
Prisoners†.....	..	..	139	170	309
General Patients.....	70	152	196	205	623
Total....	331	519	703	815	2368

* The Satara Hospital was established by Shahjee, the late Raja of Satara, in the early part of 1840, soon after His Highness' succession to the Sovereignty. It was instituted at the suggestion of Colonel Ovans, the Resident at the Satara Court. The Medical arrangements were organized by Dr. William Erskine, the first Surgeon to the Institution.

† This Regiment, which consists of upwards of 700 rank and file, is commanded by a British Officer, and is equipped and disciplined in accordance with similar Regiments in the Company's Native Army.

‡ The sick prisoners were, in the years 1844 and 1845, included in the list of out patients.

6. The MILITARY branch of the Hospital is conducted, in every respect, on the same system as that pursued in the regimental Hospitals of the H. Co.'s Native Army; and all the medical records, prescribed by the medical code, are carefully kept and preserved in the Hospital. The building appropriated for the military sick, which was erected on the first establishment of the institution, is in all respects exceedingly well adapted for the purpose. It consists of a spacious, lofty, well ventilated ward, fitted to accommodate from thirty to forty patients, and is surrounded by an ample verandah—with a commodious Dispensary and Surgery, and every other convenience attached to it; leaving, in short, nothing further to be desired.

7. The arrangements and working of the GENERAL Hospital are not quite so satisfactory. Although the annual admissions, as will have been observed, have trebled in number during the last four years; still the absolute numbers, even in the last of these years, fall short of what might have been reasonably expected.

8. The inmates of the Hospital have consisted principally of cultivators and their families from the adjoining villages, and of town and country paupers, and have comprised scarcely any Bramins, and very few of the other respectable classes of the inhabitants.

9. The following Table shews the relative numbers of the different classes and castes, and of the proportion of men, women, and children during each of the four years:—

Hindoos.	1844	1845	1846	1847	Total.
Bramins.....	2	11	8	25	46
Other Hindoos.....	49	120	126	136	131
Dheiras.....	2	6	6	4	18
Mahomedans.....	12	13	13	34	72
Portuguese.....	5	1	1	6	13
Indo-Britons.....	..	1	1	..	2
Men.....	57	132	149	126	464
Women.....	12	19	38	64	133
Boys.....	..	1	7	10	18
Girls.....	1	..	2	5	8
Total....	70	152	196	205	623

1. Whatever other reasons may be assigned for the comparative paucity of numbers, and inferiority of caste and station, of those who resort to the General Hospital, there is one cause of sufficient importance to require special notice in this Report.—I allude to the very inadequate accommodation provided for them. Unlike the ward for military patients, the General Hospital, which was formerly a Dhur-

umsalla, is a small, low, narrow, confined building, the floor of which is sunk below the level of the surrounding ground. It is consequently not only inadequate as to size, but is also damp during the monsoon; and, while it affords imperfect accommodation for only twenty patients, there are no adequate means for the separation of either castes or sexes.

11. Under such circumstances, it can scarcely be expected that persons of high caste or respectable station will become inmates of the Hospital, unless in cases of extreme emergency.*

12. The simplest and most economical method, which at present occurs to me, of remedying this defect, is, 1st to raise the floor and roof of the present building, and widen it by throwing back the inner walls; which would give improved accommodation to the classes of patients who now principally resort to the Hospital; and 2ndly to build a detached ward, capable of containing 12 or 18 patients, for the especial use of Bramins, and the higher classes of Mahrattas. These two alterations would materially contribute to the comfort of the patients, and would, no doubt, induce females and persons of the higher castes to resort to the Hospital in greater numbers than at present.*

13. During the present year, a separate building has been erected by His Highness the Raja, on my recommendation, for the accommodation of sick Dheirs, outside the Hospital compound. This arrangement has proved very acceptable both to the Dheirs themselves, and to the other patients frequenting the Hospital.

14. Having ventured to submit the foregoing observations on the nature of the accommodation provided for the sick of the General Hospital, it gives me great pleasure to add, that the utmost liberality is shewn by His Highness in providing every thing that is required for their comfortable subsistence. In all matters, indeed, relating to diet, medicines, and other supplies, the medical officer is authorized to order whatever he may deem necessary for the well being of the patients.

15. The DISPENSARY forms a most important branch of the Hospital establishment, and has already secured a large share of the

* In fulfilment of the intentions of the late Raja, a new and commodious General Hospital is now in progress of construction, under the orders of Mr. H. B. E. Frere, the present Resident at the Satara Court. This will consist of three divisions—for Bramins, Mahrattas, and Mahomedans—with a separate building for females. There is already a detached ward for Dheirs, as mentioned in the Report.

public confidence. It is open at all hours, and for all classes of the community who choose to resort to it. For this purpose the Medical Officer attends every morning at 7 o'clock; and at other times medical aid is afforded by the first Assistant of the Hospital.

15. The number of persons who have received out-door medical relief, during each of the last four years, has been:—

In 1844.....	2,392
.. 1845.....	2,302
.. 1846.....	2,690
.. 1847.....	2,897

Total.... 10,281

17. They consisted of the following classes:

	Years.				Total.
	1844	1845	1846	1847	
Bramins.....	440	318	466	623	1852
Other Hindoos.....	1401	1242	1447	1399	5489
Dheirs.....	122	219	53	70	464
Mahomedans.....	341	348	521	565	1775
Parsees.....	10	16	29	46	101
Portuguese.....	56	103	133	148	440
Europeans.....	11	38	28	24	101
Indo Britons.....	10	16	8	10	44
Jews.....	1	2	7	7	17
Men.....	1393	1351	1683	1728	6155
Women.....	393	382	487	470	1737
Boys.....	376	360	349	471	1556
Girls.....	225	209	171	228	833
Total....	2392	2302	2690	2897	10281

18. The steadily increasing numbers of Dispensary patients combined with the large proportion of Mahomedans and Bramins, the greater respectability of the “other Hindoos” (comprising many of those who claim the exclusive title of Mahrattas, Banyans, Artisans, &c.), and the increased proportion of females, shew that although generally averse, at least under existing arrangements to become inmates of the Hospital, there is no unwillingness on the part of any class of the community to receive out door advice.

19. There is, indeed, no mode of administering medical relief so congenial to native feelings as that afforded by the establishment of a Dispensary; and, therefore, there is no branch of the Satara institution, the efficiency and extension of which it is more desirable by every practicable means to promote. As the native Assistants advance in their professional acquirements, and acquire the confidence

of the people, I hope to be enabled gradually to introduce the system of visiting patients at their own houses, which are generally more accessible to the native than to the European practitioner. By this means efficient medical aid will be extended to those who are labouring under the more acute and serious diseases, and are consequently unable to leave their houses, as well as to respectable females and others, who might be indisposed to present themselves at the public Dispensary.

20. I have already had occasional opportunities of making a partial trial of the system, during the prevalence of Cholera at different periods; and with the most gratifying success. As soon as the disease made its appearance in any quarter of the town, in the lines of H. H. the Raja's Infantry Regiment, or in any of the villages in the immediate neighbourhood of Satara, a Hospital Assistant was immediately despatched to the spot. Having taken up his residence in the village or lines, (as the case might be), arrangements were made with the native authorities, by which every case of Cholera that occurred, was immediately reported to him, whereupon he personally visited the patient and administered to him, in his own hut, not only medicine, but also such nourishment (in the form of sago, port wine, &c.) as he seemed to require. Under this system, there was the least possible loss of time in commencing the treatment, while the chilling effect of exposure to the outer air, and the exhaustion necessarily attendant on removal to a Hospital, were altogether avoided. The result of these experiments was, that the proportion of recoveries which took place under my native Assistants, prescribing to patients in their own huts, nearly doubled those which occurred under my own immediate management in the Hospital.

21. A second object of even greater importance than the one just noticed, is to endeavour to bring medical aid, from time to time within reach of the principal towns and villages of the inland districts, and thus confer an important benefit on a large portion of the native population, who are necessarily prevented, by distance of residence, from repairing to Satara for advice. To carry out so desirable a measure, I would strongly recommend that the Medical Officer of the Hospital, whose trifling staff duties entail at present the necessity of his permanent residence in Camp, should be at liberty, under the authority of the Resident, to make occasional tours throughout the districts, and thus extend to their inhabitants the benefits which at present are exclusively confined to the town and its immediate

neighbourhood. An additional advantage of this measure, as affording the means of exercising a more efficient superintendence of district vaccination, will presently be referred to.*

22. Considerable progress has been made in the extension of VACCINATION during the last four years. Prior to 1844, the practice of vaccination was confined to the capital and the villages immediately adjoining; for at Akulcote (the only other place where a vaccinator was entertained), it was ascertained to exist only in name. Hence Small Pox was found to prevail, from time to time, to a considerable extent in the districts; and small pox inoculation was understood to be practised by the native practitioners in some of the towns and villages.

23. With the view of extending the protective influence of vaccination generally throughout the Satara territory, two native vaccinators were deputed from the Hospitals into H. H.'s districts in the early part of 1845; and in the course of the same year, under arrangements made by Colonel Ovans, previous to his departure for Europe, a native vaccinator was appointed to each of the Jagheers of Akulcote, Jhutt, Phultun, and Bhore—the Punt Prittee Needhee being the only Jagheerdar who did not acquiesce in these arrangements.† The vaccinators entertained by these chiefs, although originally supplied (with one exception) from the Satara Hospital, do not now form any part of its establishment. They are placed, however, under the orders of the Medical Officer of the Hospital, who, under the Resident, exercises over them the same control which he does over his own Assistants, and the numbers vaccinated in the Jagheers are incorporated with those of the Satara state in the annual vaccination returns.

24. Notwithstanding the interposition of a variety of obstacles, which it is here unnecessary to specify, considerable progress has been made, particularly in the present year, in carrying out the measure, as the following abstract will shew.

	Total vaccinated.	Satara state.	Jagheers.			
			Phultun.	Akulcote.	Bhore.	Jhutt.
In 1844	1898	1998	..	..	..	..
„ 1845	2920	1981	238	263	315	123
„ 1846	3906	2318	194	425	577	442
„ 1847	8395	5367	691	645	791	902
Total....	17169	11564	1123	1332	1683	1467

* This measure has since been sanctioned by Government.

† On Mr. Frere's recommendation a vaccinator has been entertained by the Punt Prittee Needhee since the date of this report.

25. The numbers vaccinated, it will be observed, have increased upwards of fourfold during these four years, and have more than doubled in the course of the current year, as compared with the one immediately preceding. The relative proportions of castes and sexes of the children vaccinated have been as follows:

	Years.				Total.
	1844	1845	1846	1847	
Bramins	526	473	621	1084	2704
Other Hindoos.....	1072	2246	3120	6730	13168
Dheiras.....	16	84	59	78	237
Mahomedans.....	283	117	174	502	1076
Europeans.....	..	..	2	1	3
Portuguese.....	..	..	..	..	1
Males.....	990	1667	2286	4773	9706
Females.....	908	1253	1690	3622	7473
Total....	1898	2920	3956	8395	17189

26. The foregoing results, particularly those of the current year, are very satisfactory; but I have for some time been of opinion that something more is required to ensure the complete and final success of the measure. Experience has shewn, in other parts of the Presidency, that the occasional personal supervision of a European Medical Officer is indispensably necessary for the efficient introduction of vaccination into any province—that is, for its thorough diffusion among the entire mass of the people. In addition to the benefits resulting from his personal influence and persuasion in overcoming the scruples of those who evince an unwillingness to acquiesce in the operation, his presence is required, from time to time, to stimulate the native vaccinators to continued diligence and activity in the performance of their duties, to test on the spot the accuracy of their returns, and above all to satisfy himself that the vaccine disease has not degenerated, as it is so apt to do in this country.

27. On these grounds, it seems very desirable that the Medical Officer should be at liberty, for at least two or three years to come, with the sanction of the Resident, to visit the different vaccination posts, both in His Highness' territory and that of the Jagheerdars, whenever it is deemed necessary. He would thus be enabled to accomplish two very desirable objects—first, a more efficient control of district vaccination; and secondly, the extension of medical aid to the villages of the interior.

28. This measure, to which I attach very great importance,

would involve the small outlay of 30 Rs. a month as remuneration to the Regimental Surgeon for the medical staff duties, which are at present performed without any extra allowance. As regards myself, should the measure meet your approval, I shall be happy to undertake the duty without any additional allowance, and should have no hesitation in leaving the Satara Hospital in charge of my 1st Assistant during my periods of absence.*

29. It is scarcely necessary to add, that the Medical Officer would be equally available as at present for military duty, whenever the absence of the Regimental Surgeon either on duty or from sickness, might render his services necessary.

30. The last point remaining to be noticed is the progress which has been made in medical instruction. And on this part of the subject it is satisfactory to be able to state, that the existing native establishment of the Hospital (with the exception of a compounder) consists exclusively of natives of Satara, who have been educated and trained in the institution since its establishment.† It is composed as follows :

- 1 1st. Assistant,
- 1 2nd. do.
- 1 3rd. do.
- 1 Sub-Assistant and Town Vaccinator.
- 1 Do. and District Vaccinator.

In addition to the subordinate medical servants now specified, the Hospital has during the same period furnished native vaccinators (as already stated) to three of the Satara Jagheers.

31. The medical attainments of the Hospital Establishment, so far as I have had opportunities of instituting a comparison, appear to me to be superior to the qualifications of the generality of medical servants of corresponding standing and rank in the Hospitals of the native army, while they have had the advantage (seldom available to the latter) of prosecuting their education in the English school, at the same time that they were pursuing their medical studies in the Hospital.

* As stated in a previous note, this arrangement has been sanctioned by Government.

† It was my intention, from the date of this report, to dispense with the services of first Hospital Assistant Sewapa, who was lent to the Raja by the British Government, some years ago, but the Raja having expressed a wish that he should be retained some time longer, on the grounds of his medical efficiency and his personal acquaintance with the people, he still continues at the head of the native establishment of the Hospital.

32. The method of instruction introduced by Dr. Erskine, under whose able supervision the Hospital was first established, appears to me to have been, under the circumstances, the most judicious that could have been pursued. Instead of aiming at a systematic course of scientific medical education as taught in the Grant College, which could not have been even commenced until an expensive apparatus had been procured from England (if one of its most important branches—practical anatomy, could have been introduced at all), and for which there were no pupils available who possessed the requisite preliminary qualifications, he rested satisfied with the adoption of a more practical, though less perfect, system. The result has been that all the subordinate medical duties of the Hospital are now performed by Assistants who have been taught within its walls, all of whom possess a good knowledge of the preparation, properties, and uses of medicine, and of the symptoms and treatment of ordinary diseases, and are able to perform all the minor, and a few of the major, surgical operations; and the senior of whom is sufficiently advanced to be entrusted with the temporary charge of the Hospital.*

33. Should it be hereafter deemed advisable to place a more perfectly educated native practitioner at the head of the Hospital, or in one of the inland towns, there will be no difficulty, I presume, in securing the services of one of the Licentiates of the Grant Medical College.

34. I have purposely abstained in the course of this report, from entering into any strictly medical details, but beg leave to annex a summary abstract of the diseases treated at the Hospital and Dispensary during the four years I have been in charge.†

Notes on the Climate and Diseases of Satara.

I. CLIMATE OF SATARA.

The small tract of territory, constituting the principality of Satara, comprises from west to east three distinct lines of climate.

The first and most westerly is the mountain climate of the chain of Western Ghauts, which, at an average elevation of from three to

* The presentation to the Hospital of a complete set of anatomical models, &c. by the late Governor Sir George R. Clerk K. C. B. on the occasion of his visit to Satara in 1847, has proved a valuable aid in imparting to the pupils a knowledge of the structure and position of the more important parts of the human body.

† To this abstract I have added Tables of the Diseases of the Raja's Infantry Regiment during the last four years.

four thousand feet, constitute the Western boundary of the Satara State—characterized by a highly rarefied air; a cool temperature; and almost continuous fogs and heavy rain during the south-west monsoon.

The second division comprises the narrow tract lying between the base of the Ghats and the Wurdungurh range, which branches off from the Mahdeo Hills six or eight miles east from the Salpa Ghat, and running a distance of upwards of fifty miles in a line nearly parallel with the Ghats, falls down on the Krishna twelve miles below Kurar. This tract is from thirty to forty miles in breadth, and consists of a succession of narrow valleys (upwards of two thousand feet in height), divided from each other by the numerous hills which branch off laterally from the Ghats, and watered by the upper Krishna and its tributaries, of which the Koyna, the Yenna, and the Wasna are the most considerable. Here the heat and aridity of the summer months are moderated by regular sea breezes, while a moderate fall of rain, and a most agreeable temperature, characterize the climate of the monsoon.

The Eastern and largest section of the Satara territory lies beyond the limits of any of the direct branches of the Ghats, except the termination of the Mahadeo Hills. The country here becomes comparatively level; and, beyond the upland tract which runs along its south west borders, it opens out into extensive inland plains. The climate of these districts is marked by dry bleak winds in the cold months; by great heat and aridity of surface, untempered by sea breezes, in the hot season; and by scanty rains and frequent droughts—the influence of the south-west monsoon rains being in some of the districts scarcely felt, and the operations of husbandry being principally dependent upon the heavy thunder showers that attend its close, and upon a partial participation in the rains of the Madras monsoon.*

I. GHAT CLIMATE.

The only portion of the Western Ghats, lying within the Satara territory, whose climate has been examined with any degree of accuracy, is that of the Mahableshwar range.

* The distinctions of climate above indicated are not confined to the Satara territory, but are found to prevail, with differences of degree and local extent, from the northern to the southern extremity of the Deccan Proper—the demarcation of climate corresponding not with the meridional lines, but with the line of Ghats and sea coast.

There can be no doubt, however, that the physical characters of the climate along the whole of that part of the range which forms the Satara boundary, are in all essential points the same, varying only in degree according to local elevation. The Mahableshwar climate, therefore, will furnish a faithful, though somewhat exaggerated, representation of the whole of this line of climate.

Having frequently had occasion to report upon the climate of that portion of the Ghats, and to describe the nature and effects of Hill climates generally, I need not again enter on the subject, but shall proceed at once to offer some observations on the climate and diseases of the Town and neighbourhood of Satara, situated in the second of the divisions above specified.

2. CLIMATE OF THE WESTERN DISTRICTS.

The cantonment of Satara lies in latitude $17^{\circ}. 40'$ north and longitude $74^{\circ}. 2'$ east, near the western border of the Deccan, where the smaller ramifications of the Western Ghats sink down on the table land. It is nearly in the centre of the narrow tract, before referred to, which lies between the chain of Ghats and the parallel range of Wurdungurh. It is elevated 2320 feet above the level of the sea, and is distant fifty miles from the Western coast, from which it is separated at nearly mid-distance by the Syhadree mountains.

The position of the station is singularly beautiful. It stands about a mile from the right bank of the Yenna, where that stream emerges from its narrow mountain valley into the more open vale of the Krishna, with which it forms a junction two miles below the cantonment. Round the borders of the two rivers rises an amphitheatre of hills, some of them of considerable elevation, formed on one side of direct branches of the adjoining Ghats, and of subordinate offshoots from the great Mahadeo branch on the other. Some of the higher hills comprising this circular range (among which Chundun and Wundun, Nandgherry, Jerunda, Enteshwar, and the Satara Hill fort, stand pre-eminent) exhibit in their most striking forms the distinctive features of the secondary trap formation, and impart a character of peculiar beauty to the scenery of the Satara valley.

In a semi-circular recess on the south-western border of the valley, stands the city of Satara; and about a mile further into the plain is the site of the camp.

The cantonment is built on a gently rising ridge, whence the ground to the northward and eastward declines by a gradual and

pretty uniform slope down to the bed of the Yenna. The soil immediately around the cantonment, is very shallow, and consists principally of a light, friable, yellowish red Mohrum (formed from the decomposed trap) with very little alluvial soil: but the black mould gradually deepens as it approaches the river. From the rapidity with which the soil absorbs moisture, and from the sloping nature of the ground, the surface very soon dries after the heaviest monsoon rain. There is very little irrigated land around the camp, or indeed in any part of the valley; and the vicinity is free from jungle or other reputed source of malaria.

The town of Satara, from its position immediately under the hills, is exposed to greater heat and to a greater degree of monsoon damp, than the cantonment. The latter observation applies also to the site where His Highness the Raja's Troops are cantoned on the north side of the town; but the higher elevation of the ground imparts to it a greater degree of coolness. The town is intersected by several broad open streets, which are laid out with considerable regularity; and, as seen from the adjoining hill fort embosomed in trees, which are only partially visible from below, it presents a very pretty and picturesque appearance. It is supplied with excellent water conveyed by aqueducts from the summit of Enteshwar. In this respect it has a considerable advantage over the British cantonment, the water of which, obtained from wells, is generally hard, and in some places rather brackish.

Climate.

The following observations on the climate of Satara are deduced from the experience of the last four years, in addition to a previous residence at the station during five monsoons. The physical history of the climate naturally falls to be considered here as elsewhere in India, under the three popular divisions of the hot, the rainy, and the cold season:

Hot season.—The hot season may be said generally to set in about the beginning of March. Its commencement is sometimes sudden and well marked, but more frequently it is gradual; and the heat of the weather increases pretty steadily during the month. This, however, is shewn more by its prolonged duration than by the absolute augmentation of temperature—the in-door thermometer reaching a considerable elevation at an early period of the day, and not beginning to decline until 7 or 8 o'clock in the evening. In ordinary

years the heat reaches its maximum both of amount and duration, in the month of April. In the early part of May the temperature somewhat declines, and is less protracted; and after the middle of the month, westerly winds become more prevalent, and the air is cooled by the clouds which then begin to form on the adjoining mountains.

The characters of the hot season are here singularly uniform. The early mornings are invariably calm and serene, and the air is cool and pleasant until about 7 o'clock, with a greater degree of softness and (I think) of freshness, than is even experienced on the Mahableshtar Hills. After 8 o'clock the heat rapidly increases. The early part of the day is generally still, or there is a light air veering from east to north. The exceptions to this generally occur in March, particularly about the period of the equinox, at which time a high hot land wind occasionally blows throughout the day.

Soon after midday a strong westerly* or sea breeze sets in with a sudden gust, and continues to blow during the remainder of the day. This constitutes the hot wind of this part of the Deccan. It commences, during March, between 12 and 2 o'clock, and generally by midday in April and the first half of May, after which it is usually the prevailing wind throughout the twenty four hours. It blows with considerable strength, and is hot, dry, and disagreeable until sunset, when it becomes milder and less gusty; and towards dusk it gradually gets soft, cool, and refreshing. When it does not set in, however, till after 2 o'clock, it generally continues warm and unpleasant until late in the evening. In the early part of May it rarely retains its warmth beyond 5 o'clock, after which hour it is comparatively pleasant, and in the latter half of the month it acquires a pleasant degree of moisture, and an invigorating freshness, in its passage through the mists, fogs, and clouds, which at that time collect on the summits of the western range of Ghats.

In the early part of the season, the westerly wind usually blows till 8 or 9 o'clock in the evening; when it shifts to the northward, and is occasionally followed by a close night; but during April and May the sea breeze generally blows, with greater or less strength until morning, and thereby ensures cool nights.†

April is found to be the hottest month, both from the sensations, and from the indications of the thermometer. March is thermome-

* This wind generally blows from west, or one or two points to the southward of west.

† The nights at Satara, at this time, are frequently cooler than at Mahableshtar, where the sea breeze, setting in earlier, subsides generally in the evening, and is followed by a light north easterly wind.

terically the coolest; but the climate of May is more pleasant to the feelings than either of the other two months.

Two or three heavy thunder showers from the eastward generally fall towards the end of May, and occasionally one or two showers in April.* Though always preceded by sultriness of the air, these showers are generally followed by a considerable abatement of the hot winds.

From what has been stated, it will be perceived that the heat of Satara is neither immoderate nor protracted. It is rarely very oppressive to the feelings, nor does the climate in the hot season prove so relaxing or exhausting to the system as might be expected from its abstract temperature. This arises partly from the dryness of the atmosphere but principally from its rarefaction (consequent on its local elevation) and from the regularity and strength of the sea breezes.† In a substantial thatched house, with the doors shut and the windows closed and screened between the hours of from 7 to 9 in the morning and 5 in the evening, the temperature in the hottest month of the season, usually ranges between 76° and 84°. Tatties are neither absolutely necessary, nor are they indeed productive of much benefit. A single tatti put up in the afternoon is useful as a means of renewing the inner air, rather than of cooling the apartment—its effect being to elevate rather than to depress the thermometer, in consequence probably of the wind blowing at that time from the seaward.

In the outer air the wind is felt to be unpleasantly hot; but the reflected heat is by no means so great as might be expected, or as it is found to be in less elevated and more inland parts of the Presidency. The surface of the country, too, though bare and brown, has not a very parched appearance, and is agreeably relieved by the fresh foliage of the surrounding trees.

Rainy season.—During the first half of June, there is a gradual transition from the dry and unpleasant heat of the hot season to the soft and refreshing temperature of the monsoon. On some days

* In April 1847, there were seven days of heavy rain amounting altogether to inches 10.88 of which 8.87 fell on the 18th, 19th and 20th. This rain was accompanied, not by thunder as is usual at this time of the year, but by a strong and continued gale of wind from the eastward, which extended all along the western coast and occasioned the loss of several vessels.

† The westerly winds seem to absorb part of the excess of electric matter, which, at times, is so observable at Ahmednuggur and some other inland places, beyond the reach of the regular sea-breezes, and which exerts a prejudicial influence on those who are predisposed to nervous and vascular excitement.

there is a genial softness of the air, with westerly breezes; on others (and these, perhaps, the most numerous), the atmosphere is close and sultry in the early part of the day; soon afternoon clouds begin to congregate on the eastern horizon, and the day closes in with a heavy thunder shower from the same quarter. These thunder showers vary much, both in frequency and severity, in different years; but experience has shown that they are neither so violent nor so destructive in the Satara valley, as they are in the more open cantonment of Poona.

The date at which the south-west monsoon sets in, varies in different years; but its commencement generally occurs between the 10th and 20th of June. For one or two days the characteristic initiatory monsoon clouds are observed to cap the summits of the surrounding mountains, accompanied by a delicious freshness of the air; and at length the monsoon commences usually during the day, either with dense drizzling showers, or more rarely with steady heavy rain, continued for an entire day. The climate now acquires the coolness and freshness so characteristic of the Deccan monsoon; vegetation, which had partially sprung up under the influence of the preceding thunder showers, now increases with astonishing rapidity; and in a few days the fields and surrounding mountains assume the freshness and verdure of a northern spring.

The weather throughout the remainder of June, and during the month of July* and greater part of August, preserves the same general characters, modified to a certain extent by the relative quantity of rain. The temperature is cool, equable, and very congenial to the feelings, being alike removed from sultriness on the one hand, and from unpleasant chilliness on the other; there is a pleasant alternation of dense dark-grey sky with partial sunshine; a fresh breeze blows with scarcely any interruption from W. S. W.; and the rain chiefly falls in short though frequent showers, in the intervals of which exercise in the open air is very agreeable. The station is protected

* A remarkable deviation from the usual course of the monsoon weather occurred in July 1846. The regular monsoon rains had commenced on the 7th of June, and showers fell on every day except four, during the remainder of the month, and the first four days of July, amounting altogether to 13 inches. On the 9th of July (full moon) and four following days there was close sultry weather and a blue sky (like that of the first week of June) with lightning and heavy thunder showers from the east; then a return of the usual dark grey monsoon sky and south westerly winds, and on the 17th a fresh setting in of the monsoon rains. A similar occurrence took place in the monsoon of 1839, and again in 1848.

by the adjoining Ghats from the drenching rains, and boisterous winds which prevail on the summits of these mountains and (in a less degree) on the narrow tract of country from their base to the sea-coast ; while it is exempted from the scanty and uncertain falls, and the frequent droughts of the inland country, only a few miles to the eastward. Although the occurrence of short and drizzling showers in the afternoon (which are generally most frequent in the scantiest monsoons) is at times complained of as interfering with evening exercise, which is so essential to health and enjoyment in India, no excessive dampness of the air is ever experienced in doors.

Towards the end of August or beginning of September the showers become lighter, more partial, and of shorter duration ; the air is sensibly drier and warmer but still pleasant ; and the wind begins to shift at times to the northward of west. White clouds are again observed to rest on the tops of the higher mountains, and occasionally on the morning to trail along their sides ; and during the day elevated white fleecy clouds (cumuli and cumulo strati) with large intervening patches of blue sky, take the place of the darker and denser rain clouds of the previous months.

During the latter half of the month, the air is felt at times to be somewhat close and sultry ; but in general it is pleasantly moist and altogether agreeable to the feelings. The winds are now light and variable, veering from north-west round by north to east. From the latter quarter proceed the thunder showers that mark the close, as they usher in the commencement, of the monsoon. Several hail-storms are occasionally experienced at this period.*

The climate of the four monsoon months (which, but for the opportune fall of the periodical rains, would prove the hottest part of the year) is in this part of the Deccan more agreeable to the feelings, and more invigorating to the system, than that of the cold season. The temperature in a house, during three months of this period, ranges generally from 72° to 75° ; the atmospheric humidity is moderate ; and exercise in the open air, during the day, may be indulged

* The partial nature of these showers has often been very strikingly shewn here. Thus on the 31st of May 1844. 98 cents fell at my bungalow in two hours ; while at the other end of the cantonment, not half a mile distant, the quantity was insufficient to lay the dust. On the 23rd September 1845, during a severe hail-storm, 3. 30. inches fell at my bungalow in the course of 50 minutes, while during the same period inches 1. 40 fell at the Town Hospital, at the same distance. Again on the 22nd September 1847, there fell, in an hour, at the Town Hospital 2. 12, at my bungalow 1. 32, and at the cantonment Hospital 0. 92.

in with more pleasure and with greater impunity than during the months of the cold season.

The average annual fall of rain for the last four years is $39\frac{1}{4}$ inches,* of which two thirds fall during the four monsoon months.†

During the last four years, the fall of rain in any one year has not differed more than three inches from the mean of the four, and the difference between the minimum and maximum yearly fall does not amount to five inches; although two of these years, 1845 and 1846, were marked respectively by a very *scanty*, and a *plentiful*, monsoon in other parts of the Presidency.‡

The quantity of rain in the Town of Satara usually exceeds that in the cantonment, situated a mile N. E., by six or eight inches.§

Cold season.—The month of October connects the rainy and cold seasons. During the first part of the month the sky is usually chequered with clouds; there are occasional short heavy showers, with or without thunder, from the eastward; the winds are light and variable; and the air is soft and occasionally close, though by no means unpleasantly warm. The atmosphere is without the bracing freshness so characteristic of the mountain air at this time; but, on the other hand, it does not partake of the oppressiveness which is experienced on the coast. When there is a deficiency, however, of the late rains (as in 1845), a hot, dry, easterly wind sometimes prevails, succeeded by a close night. In the latter part of the month the sky is clear, and the air becomes dry and warm in the day; in the evening, there is generally a light westerly wind, and a heavy dew at night.

The cold season usually commences in the first week of November, after which (with the exception to be noticed) the climate maintains a tolerably uniform and steady character during that and the two

* The average fall during the years 1835, 1836, 1837, as measured by Dr. Young Howison was $38\frac{1}{2}$. Bombay Med. Trans. ii. 215.

† In 1847 of an annual fall of 40.98 inches only 16.23 fell in the four monsoon months, upwards of 10 inches having fallen in the month of April and 8 inches in November. In fact the monthly falls are always more variable than the annual.

‡ In Bombay the fall of rain in 1846 exceeded that of the previous year by $32\frac{3}{4}$ inches.

§ The following statement shews the fall at the Town and the Cantonment Hospital, and at my Bungalow which is equidistant from the two:—

Years.....	1844	1845	1846	1847
Town Hospital.....	..	44-39	42-92	43-17
Bungalow.....	36-06	40-24	39-52	40-98
Cantonment Hospital..	..	38-34	31-65	39-00

following months. The mornings are invariably still and cool, and frequently cold; and during November (but rarely afterwards) a smoky fog generally rests over the beds of the Yenna and the Kistna until 7 or 8 o'clock. In the early part of the day an easterly or north-easterly wind springs up, and blows, with varying degrees of strength, but in general very moderately, until 3 or 4 o'clock in the afternoon, when it either subsides into a light easterly air, or draws to the southward, and is succeeded by a still night. In clear weather during the early part of the season, there is a pretty copious deposition of dew. Towards the end of January the wind begins to draw round to the westward* in the evening; and in February the sea breeze generally sets in with great regularity between 11 and 1 o'clock and blows through the rest of the day, rendering the climate, during the month, more agreeable to the feelings than in the colder and drier months that precede it.

Such is the prevailing character of the weather of the cold season. But there are frequent intervals of cloudy weather, which lasts for a week or ten days; and the presence of Cinhi or Cumuli, separately or combined, never fails to render the temperature of the air much warmer, and particularly conduces to warm nights. The coldest weather is always experienced when the sky is perfectly clear, and the wind is either due east, or one or two points to the southward of east.

A few showers of rain generally fall in the course of the cold months, but they are less frequent and less heavy at this station than in the districts to the eastward. They occur most frequently in November, though occasionally at other times. A plentiful fall of the late autumnal rain is not less beneficial to the climate, than it is to the crops of the cold season, and tends more particularly to temper the dryness and harshness of the east winds.†

The temperature in the four winter months (excluding October) usually averages from $68\frac{1}{2}^{\circ}$ to $76\frac{1}{2}^{\circ}$ but though this be the coolest period of the year, the weather is neither so pleasant nor so bracing as

* In the wet season, the east wind of the early part of the day draws round in a *southerly* direction to the west; while, in the hot season, it draws round by the *northward* to the same point. The west wind also observes the same order in its return to east.

† Eight inches of rain, as has been stated, fell in the first week of November 1847, and on the 9th and 10th December 1846, there was a fall of $2\frac{1}{2}$ inches which rapidly brought out considerable verdure that continued till about Christmas day. Dr. Young Howison also states (Bombay Med. Trans. ii. 216) that the camp and whole surrounding country were nearly inundated in February 1831. Rain at so late a period is very injurious to the Rubbee crops.

the climate of the monsoon. The air is often unpleasantly dry, particularly when the wind blows uninterruptedly from the east, for several days in succession, without drawing round to the southward or westward. In this respect the Deccan cold weather is inferior to that of Bombay; but it possesses some advantages over the climate of the hills. The nights and mornings are decidedly more pleasant, from being calmer and nearly as cold: and, although the days are much warmer and consequently outdoor exercise at that time cannot be so freely indulged in, this is in some degree compensated by the absence of the high easterly winds which prevail so frequently on the hills in these months.

The physical characters of the Satara climate may be thus briefly recapitulated:

1. A mild and moderate temperature during the greater part of the year. (1.) In the hot season, the hot winds during the day, though sufficiently uncomfortable, are neither very oppressive to the feelings, nor exhausting to the system; the evenings and nights are cooled by a fresh sea breeze; and the early mornings are still and cool. (2) The cold of the cold season is temperate without bleakness, but at the same time without the invigorating freshness of a corresponding ex-tropical temperature. (3) A cool and very congenial refreshing temperature, both in and out of doors, is experienced during the southwest monsoon.

2. Liability to extensive transitions of temperature between the day and the night, during the fair months of the year, with great equability during the monsoon.

3. Unpleasant dryness of the air during the greater part of the fair season, and an agreeable moisture in the monsoon.

4. A light and attenuated atmosphere with a diminution of a twelfth of its superincumbent pressure.

Physiological characters.—The physiological action of the climate is principally shewn in producing more or less excitement of the nervous and vascular systems. The air is found to be dry, heating, and irritating in the hot season; it is dry and exciting in the cold months; and it has a refreshing and bracing influence in the monsoon.

A European in health on arriving in this part of the Deccan, after a residence on the sea coast or in the low lying province of Guzerat, usually experiences at first a degree of lightness of spirits and bodily energy, and a freedom of respiration, which he had not felt in the low country. These sensations are generally succeeded by more or

less excitement of the nervous and vascular systems and (particularly in the fair season) by an unpleasant sense of dryness and constriction of the surface. If he be of plethoric habit, he will probably be liable to headache, or other indication of cerebral excitement; and if subject to local derangement of the circulation, and more particularly of the venous system, he will probably experience some of the effects and indications of visceral congestion.

These two effects—vascular excitement and dryness of skin are almost invariably and exclusively ascribed to the dryness of the Deccan air. That they are in part attributable to this cause may be inferred from the ascertained dryness of the air, and from the circumstance of their being experienced to a greater extent in the fair and dry months than at other times. But the fact that they are also felt, though in a less degree, during the rainy season, at which period there is an agreeable humidity of atmosphere, clearly proves that they must, in part at least, be ascribed to some other agency. For it will not be denied that the monsoon air of the Deccan is moister than the dry weather air of the low country; and yet the former is more exciting than the latter.

In point of fact, the phenomena now under consideration are strictly analogous to the effects which I have elsewhere described* as incident to the hill climates of India, and they arise from the same cause—a low atmospheric pressure.

The local elevation of the Deccan, which gives it a temperature 4° or 5° lower than that of the sea coast, deprives it at the same time, as has been already stated, of one twelfth of its superincumbent atmospheric weight, and entails the usual physiological effects of a rarefied atmosphere. The light pressure of the air produces excitement of the nervous and vascular systems; while its great attenuation accelerates and augments cutaneous evaporation, and consequently induces a sense of aridity and constriction of the skin.

These effects vary in different individuals, or rather in different states of the system. The vascular excitement, which, in one kind of constitution or in one condition of the body, acts as a pleasant and healthy tonic, invigorating and improving the general health, will be found, in another person of different habit, to induce a heated state of the system, and perhaps call into action some latent visceral disorder, the existence of which had been previously unknown.

* Bombay Medical Transactions vii. 8.

As a general rule, liable of course to numerous exceptions, it may be stated, that persons on their first arrival in India, who feel languid and oppressed on the coast, usually prefer the Deccan climate; while the old Resident, who is liable to a variety of uneasy sensations in the Deccan, generally feels more comfortable and happy under the soothing influence of the soft breezes of the sea-coast.

To conclude this part of the subject—the climate of Satara, in its physiological properties, holds an intermediate place between the low-lying provinces of Guzerat and the Konkan, and the mountain stations. It is cooler, more variable, drier, lighter, and more bracing, but at the same time more irritating and exciting, than the former; considerably warmer, more changeable, of a higher pressure, less exciting and less invigorating, than the latter.

To this brief sketch of the usual characters and progress of the seasons at Satara, and of the chief physical and physiological attributes of the climate, it may be useful to subjoin, in a tabular form, the mean and extreme monthly results of the meteorological observations which have been recorded during the last four years, to which will be added a summary of the principal characters of the climate as deduced from these observations. To the out-door temperatures in the shade, I have added a series of in-door observations, which will shew the temperature which can be preserved in a house throughout the year.

*A Synopsis of four years Meteorological Observations (from 1st January 1844 to 31st December 1847) at Satara
Lat. 17° 40' N. Long. 74° 2' E. Height above the sea 2320 feet.*

MONTHS.	OUT-DOOR TEMPERATURE IN THE SHADE.										IN-DOOR TEMPERATURE.										RAIN-FALL.					WIND.						
	Means.					Extremes.					Means.					Extremes.					Means.					Extremes.					Direction.	Force.
	Mean Temperature.	Mean daily Variation.	Mean daily Maximum.	Mean daily Minimum.	Temperature of successive months.	Extreme daily Variation.	Extreme monthly Variation.	Extreme Maximum.	Extreme Minimum.	Mean Temperature.	Mean daily Variation.	Mean daily Maximum.	Mean daily Minimum.	Temperature of successive months.	Extreme daily Variation.	Extreme monthly Variation.	Extreme Maximum.	Extreme Minimum.	Mean depression of wet thermometer.	Humidity of the Air.	Mean monthly fall.	Mean No. of Rainy days.	Mean day fall.	Mean night fall.	Extreme daily fall.	Extreme monthly fall.						
January.....	73.4	17.4	82.1	64.7	2.0	23.0	31.0	86.0	53.0	70.0	8.7	76.4	67.7	1.8	12.5	18.0	80.5	59.5	8.5	0.02	1 in 2 years	..	0.02	0.03	0.03	0.03	0.03	E.S.W.	Mod.			
February.....	73.2	18.2	82.3	64.1	0.2	26.0	33.0	90.0	50.5	72.6	8.0	76.6	68.6	1.6	11.0	20.0	90.0	58.5	9.3	0.08	3 in 4 years	0.08	..	0.18	0.18	0.18	0.18	E.W.	Fresh			
March.....	81.5	20.5	91.8	71.3	8.3	32.0	38.5	100.0	62.0	77.8	6.8	81.2	74.4	5.2	10.5	15.5	85.5	68.5	10.2	0.04	3 in 4 years	0.01	0.03	0.07	0.19	0.19	E.S.W	Mod.				
April.....	85.1	20.7	95.5	74.8	3.6	31.5	36.5	102.0	64.0	80.6	8.2	84.7	76.5	2.8	11.8	17.7	90.7	68.0	10.5	2.97	2 years	1.54	1.43	4.40	10.88	10.88	E.W.S.W.	..				
May.....	83.5	19.0	95.0	76.0	0.4	26.0	29.5	103.0	70.0	80.1	8.6	84.4	75.8	0.5	11.0	14.0	87.5	71.0	8.2	1.26	4 years	1.17	0.09	1.55	3.49	3.49	E.W.	..				
June.....	75.9	7.6	79.7	72.1	9.6	22.0	22.0	93.0	69.0	77.0	4.6	79.3	74.7	3.1	11.3	15.5	86.0	70.5	4.5	7.53	20 years	4.66	2.87	2.09	10.39	10.39	Vble.	..				
July.....	73.6	4.6	75.9	71.3	2.3	7.5	11.0	91.0	60.0	73.8	3.1	75.4	72.3	3.2	7.0	10.0	82.0	70.0	3.5	10.44	24 years	6.18	5.26	3.41	16.04	16.04	W.S.W.	Fresh				
August.....	72.7	3.2	74.3	71.1	0.9	10.0	10.0	80.0	69.0	73.0	3.2	74.6	71.4	0.8	6.0	7.5	78.5	69.5	3.7	3.28	24 years	2.21	3.07	1.81	11.91	11.91	W.	..				
September.....	73.8	7.8	77.7	69.9	1.1	16.0	19.0	83.0	64.0	74.0	4.7	76.4	71.7	1.0	8.5	11.0	81.5	69.0	4.2	4.54	12 years	3.41	1.13	3.55	9.71	9.71	Variable.	Light				
October.....	76.6	12.4	82.8	70.4	2.8	21.0	30.0	93.0	63.0	76.1	5.4	78.8	73.4	2.1	9.0	13.0	82.5	69.0	6.1	5.07	6 years	1.12	2.52	3.25	5.25	5.25	Variable.	..				
November.....	70.9	14.0	77.9	63.9	5.7	21.0	25.0	85.0	58.0	72.0	7.0	75.5	68.5	4.1	13.0	19.0	81.0	60.0	7.6	2.74	2 years	0.33	2.41	4.61	8.00	8.00	E.	Mod.				
December.....	71.2	16.7	73.6	62.9	0.3	25.0	27.0	86.0	57.0	71.8	7.2	75.4	68.2	0.2	11.0	17.3	80.0	61.0	8.1	0.66	1 years	0.36	0.36	0.39	1.72	1.72	E.S.	..				
Quadrannual Means and Extremes..	76.0	13.5	82.8	69.3	3.1	32.0	38.5	103.5	50.5	75.0	6.3	78.2	71.9	2.2	13.0	20.0	90.7	58.5	7.0	39.20	97	20.07	19.13	4.61	11.91	11.91						

Note.—The out-door temperatures are those given by a Thermometer suspended in the Eastern Veranda of the Town Hospital, which is a lofty tiled building. The in-door temperatures are taken from a Thermometer suspended in a large lofty room of a thatched Bungalow in the Cantonment, which is closed and screened during the heat of the day in the hot season, kept open in the Monsoon, and in general partially closed on the east side in the cold season. The Pluviometer is placed three feet above the ground.

*Summary of the principal characters of the Satara Climate,
as deduced from 4 years' Observations.*

Mean Annual Temperature.....	out-doors	76° 0'
" " "	in-doors	75. 0.
" Daily Variation of Temperature.....	out-doors	13. 5.
" " " "	in-doors	6. 3.
" Maximum Temperature.....	out-doors	82. 8.
" " " "	in-doors	72. 8.
" Minimum Temperature.....	out-doors	69. 3.
" " " "	in-doors	71. 9.
Extreme Daily Range of Temperature.....	out-doors	32. 0.
" " " "	in-doors	13. 0.
" Monthly Range of Temperature.....	out-doors	38. 5.
" " " "	in-doors	20. 0.
" Yearly Range of Temperature.....	out-doors	53. 0.
" " " "	in-doors	30. 2.
" Maximum Temperature observed.....	out-doors	103. 5.
" " " "	in-doors	90. 7.
" Minimum Temperature.....	out-doors	50. 5.
" " " "	in-doors	58. 5.
Difference of Mean Temperature of successive months.....	out-doors	3. 1.
" " " "	in-doors	2. 2.
Mean Daily depression of wet bath Thermometer.....		7. 0.
Mean Annual fall of rain.....	inches.	39. 20.
" Day fall of rain.....	"	20. 7.
" Night fall of rain.....	"	19. 13.
" No. of days on which rain falls.....		97.
Extreme Annual fall of rain.....	"	40. 98.
" Monthly fall of rain.....	"	11. 91.
" Daily fall of rain.....	"	4. 61.
" Hourly fall of rain.....	"	3. 30.

3. CLIMATE OF THE EASTERN DISTRICTS.

The only two towns in the eastern Districts of the Satara territory, whose climates I have had the means of ascertaining with any degree of accuracy, are those of Phultun, and Beejapoor. The former is the Capital of one of the Satara Jagheerdars, and is situated little more than a mile from the right bank of the Neera, about 30 miles N. E. from Satara, from which it is separated by the Mahadeo range of hills. The position of the latter is on the eastern border of the Satara state.

A daily Meteorological Register was kept at Phultun, under my instructions, by the Native Vaccinator during the years 1846 and 1847. Having found, however, that the thermometrical observations for the first of these years were vitiated by an unsuitable position of the instrument and other causes, I have retained only those of 1847. The Beejapoor observations are for 1848, and were also kept by a Vaccinator. The following Table embodies the Thermometrical indications at both places; the Pluviometrical observations will be afterwards noticed.

Thermometrical Registers kept at Phultun during 1847, and at Beejapoor during 1848.

MONTHS.	PHULTUN (1847.)					BEEJAPOOR (1848.)																
	Temperature in the shade.					Temperature in the shade.																
	Means.					Extremes.					Means.					Extremes.						
	Mean Temperature.	Mean Daily Variation.	Mean Maximum.	Mean Minimum.	Extreme Daily Range.	Extreme Monthly Range.	Extreme Monthly Range.	Extreme Maximum.	Extreme Minimum.	Mean Temperature.	Mean Daily Variation.	Mean Maximum.	Mean Minimum.	Difference of Mean Temperature of successive months.	Extreme Daily Variation.	Extreme Monthly Variation.	Mean Maximum.	Mean Minimum.	Difference of Mean Temperature of successive months.	Extreme Daily Variation.	Extreme Monthly Variation.	Extreme Maximum.	Extreme Minimum.
January.....	74.8	12.4	81.0	68.6	13.0	15.0	82.0	67.0	78.7	8.5	83.0	74.5	0.5	9.0	10.0	84.0	74.0	0.5	9.0	10.0	84.0	74.0
February.....	76.9	12.6	83.2	70.6	15.0	28.0	88.0	60.0	75.3	10.7	84.5	73.8	3.4	13.0	17.0	87.0	70.0	3.4	13.0	17.0	87.0	70.0
March.....	83.9	7.7	87.8	80.1	10.0	14.0	90.0	76.0	84.8	11.5	90.6	79.1	9.5	15.0	18.0	95.0	77.0	9.5	15.0	18.0	95.0	77.0
April.....	83.9	9.5	88.5	79.0	13.0	22.0	94.0	72.0	88.4	10.8	93.8	83.0	3.6	14.0	18.0	96.0	78.0	3.6	14.0	18.0	96.0	78.0
May.....	86.1	9.3	90.8	81.5	14.0	16.0	94.0	78.0	88.5	9.2	93.1	83.9	0.1	11.0	15.0	96.0	81.0	0.1	11.0	15.0	96.0	81.0
June.....	81.2	4.8	83.6	78.8	8.0	11.0	88.0	78.0	85.0	5.5	88.2	82.7	3.5	7.0	7.0	89.0	82.0	3.5	7.0	7.0	89.0	82.0
July.....	80.2	4.3	82.4	78.1	6.0	8.0	84.0	76.0	81.2	6.8	84.6	77.8	3.8	10.0	14.0	87.0	73.0	3.8	10.0	14.0	87.0	73.0
August.....	79.3	4.7	81.7	77.0	6.0	8.0	84.0	76.0	78.7	9.8	83.6	73.8	2.5	11.0	10.0	82.0	72.0	2.5	11.0	10.0	82.0	72.0
September.....	78.9	4.5	81.2	76.7	6.0	10.0	84.0	74.0	78.2	10.0	83.2	73.2	0.5	11.0	15.0	86.0	71.0	0.5	11.0	15.0	86.0	71.0
October.....	80.0	6.0	83.0	77.0	8.0	14.0	86.0	72.0	76.6	9.4	84.4	75.0	1.4	11.0	12.0	86.0	74.0	1.4	11.0	12.0	86.0	74.0
November.....	73.5	6.6	76.8	70.2	10.0	18.0	82.0	64.0	76.7	9.1	81.3	72.2	2.9	11.0	14.0	84.0	70.0	2.9	11.0	14.0	84.0	70.0
December.....	72.9	8.4	77.1	68.7	10.0	18.0	82.0	64.0	79.2	8.5	83.5	75.0	2.5	9.5	10.0	84.5	74.5	2.5	9.5	10.0	84.5	74.5
Annual.....	79.2	7.5	83.0	75.5	15.0	28.0	94.0	60.0	81.7	9.1	86.9	77.0	2.8	15.0	18.0	96.0	70.0	2.8	15.0	18.0	96.0	70.0

Note.—The Thermometers were suspended in the interior of an unoccupied terrace-roofed building open on one side.

From the foregoing registers it appears that the mean annual temperature at Phultun, in 1847, was $79^{\circ} 2'$; or $4^{\circ} 8'$ higher than that of Satara for the same year. This difference of temperature, between two places of about equal altitude and distant only thirty miles, shews that in this part of the Deccan, distance from the sea is nearly as influential in determining the character of the climate as local elevation. The annual temperature at Beejapoor for 1848 was $81^{\circ} 7'$ —or 5° in excess of the Satara temperature for the same year.

The differences in the indications of the Pluviometer at Satara and Phultun, both as regards the quantity of rain and the periods of its fall, are still more remarkable than the discrepancies of temperature. The following is an abstract statement of the monthly quantities measured at Satara and Phultun during the years 1846 and 1847.

Monthly Registers of the Pluviometer at Satara and Phultun during 1846 and 1847.

MONTHS.	Satara.		Phultun.	
	1846.	1847.	1846.	1847.
January.....	0.18	..	..	..
February.....	0.18	..	..	0.02
March.....	..	0.18	..	0.52
April.....	..	10.88	1.44	4.19
May.....	3.49	0.39	1.06	2.88
June.....	10.49	3.77	3.80	1.53
July.....	16.04	6.28	1.95	0.84
August.....	2.13	2.68	..	0.50
September.....	0.77	3.55	1.05	2.09
October.....	2.98	5.25	2.50	3.06
November.....	0.98	8.00	5.04	4.60
December.....	2.46	0.05	1.53	0.89
Annual rain	39.52	40.98	18.09	24.04
Average of the two years.....	40.25		19.56	

This statement shews, 1st, That the annual fall of rain at Phultun, during the last two years, was one half less than that at Satara; and 2ndly, That of these respective yearly quantities, two thirds fell at Satara during the monsoon months, and one third in the other months of the year; while at Phultun one third of the yearly fall is due to the former period, and two thirds to the latter.

DISTRIBUTION OF RAIN IN THE SATARA TERRITORY.

The distribution of rain in the greater portion of the Districts of the Satara territory, appears to depend almost entirely on their respective distances from the western Ghats. Hence, while there seems to be very little variation in the quantity that falls at different points on any given line running parallel with the Ghats from north to south, we find that the effect of only a few miles distance from west to east, serves to modify very materially the amount of the south-west monsoon rain. On the summit line of the Ghats, as before stated, it is always redundant. In the western districts it is generally plentiful but moderate. In the eastern Districts, the scantiness of the south-west monsoon is to a certain extent compensated by the copiousness of the autumnal rains.

During the past year, registers of the Pluviometer* have been kept at thirteen different places within the Satara territory—one on the range of Ghats;† seven in the western districts; and five in the eastern districts. The results of these observations are embodied in the following Table.

* As Pluviometers are not procurable in sufficient numbers from the Medical Stores, it may be well to mention that the plan which I have adopted has been to get copper funnels made in the bazaar, exactly corresponding with each other in diameters, and to place glass measures in charge of two or three Vaccinators most centrally situated, to whom the rain water collected by the others is sent for measurement on the 1st of each month.

† To the Ghat observations, I have prefixed, for the purpose of comparison, those made at the Mahableshwar Sanatorium, for which I am indebted to the Superintendent of the station.

Comparative fall of rain at different places in the Satara Territory during 1848.

MONTHS.	GHATS.		WESTERN DISTRICTS.					EASTERN DISTRICTS.				
	Mahableshwar.		Satara Fort.	SATARA.		Bhore.	Wye.	Phulian.	Jhutt.	Bejapoor.	Punderpoor.	Akulkote.
	Sanatorium.	Sindola.		Town.	Cantonment.							
January.....	..	..	..	..	..	..	..	..	..	..	..	..
February.....	..	..	..	0.80	0.04	..	..	..	..	..	..	..
March.....	..	..	..	0.74	0.76	..	..	..	..	..	..	..
April.....	3.69	3.60	2.50	3.04	2.79	2.10	2.09	6.24	1.59	0.80	0.73	1.93
May.....	58.22	41.70	4.10	3.71	3.26	2.37	2.20	4.39	3.07	3.67	2.02	3.68
June.....	96.28	74.28	18.77	14.64	12.02	13.20	9.05	2.70	4.82	8.52	4.38	4.65
July.....	63.95	47.81	5.00	2.60	2.55	5.19	1.61	1.24	4.82	4.01	6.21	4.83
August.....	9.48	6.17	1.46	2.14	1.40	0.91	0.96	34.57	2.64	4.64	4.35	2.84
September.....	9.31	7.23	4.64	4.89	3.28	1.50	2.75	2.45	3.88	4.64	8.35	5.32
October.....	4.08	4.37	2.91	1.57	1.71	4.15	2.25	3.59	2.17	3.78	2.49	2.30
November.....	..	..	..	..	..	..	..	..	..	..	..	..
December.....	..	..	..	..	..	..	..	..	..	..	..	..
Annual Fall.....	245.01	185.16	39.38	33.41	27.81	29.42	20.73	24.18	18.17	25.42	28.55	25.45

NOTE.—The height of Mahableshwar Sanatorium is 4500 feet—Sindola, 4600—Meera 2340—Enteshwar, 3700—Satara Fort, 3200—Satara, 2320. The elevation of Bhore and Wye may be estimated at 2350, and 2320, respectively; while the height of the 5 places named in the Eastern Districts may be set down at 2000 feet.

To prevent erroneous deductions being drawn from the foregoing Table, it is necessary to remark, that while there has been a fair average of rain on the Ghats during the year, the fall in the western districts has been below, and in the eastern districts above, the average amount of former years.—The deficiency in the former may be estimated at 10 inches; the excess in the latter at 5 or 6 inches. The effect of local position, in determining the amount of rain at points of nearly similar elevation and closely adjoining to each other, is strikingly exemplified in the two series of observations at Mahableshwar. At the Sanatorium—elevated 4,500 feet—the rain-fall during the year amounted to 245 inches, being within three inches of the average fall during the preceding twenty years.* At Sindola, the residence of Mr. Frere—situated a mile east from the Sanatorium, about 100 feet higher, with the intervening eminence of Mount Charlotte rising to a further height of 100 feet—the quantity of rain did not exceed 185 inches during the same period. Here we have a difference of 60 inches, or 24 per cent., at two houses situated at the same station. The position of the ground explains the difference; but probably few people, on examining the two localities, would have anticipated its amount. It shews the supreme importance of instituting multiplied observations before deciding on the site of a sanatory hill station.

At Satara, as in other parts of the western Districts, the fall of rain was scanty, particularly during the months of August and September. The total quantity in the Cantonment was $27\frac{3}{4}$ inches—being $11\frac{1}{2}$ inches below the average of the preceding four years. At Meera in the Yenna valley, midway between the Mahableshwar hills and Satara, it amounted to $49\frac{1}{2}$ inches; while ten miles lower down, on the hill of Enteshwar, which forms the western boundary of the valley and rises about 1500 feet above its level, it did not exceed $38\frac{1}{2}$.

At Bhore, near the head of the Neera valley, the fall approximates very closely to that at Satara: at Wye, again, in the upper part of the Krishna valley, there is a decrease of 7 inches.

In the eastern Districts, as already stated, the monsoon has been unusually plentiful. The yearly fall did not quite equal that at Satara; but the quantity measured in the months of August, September, October, and November, was double that which was registered at Satara in the same months. Hence the crops which have been be-

* The annual average fall of rain, from 1829 to 1848 inclusive, has been $218\frac{1}{2}$ inches.

low the average in the western vallies, have been very abundant in the eastern Districts.

The prodigious influence of the Ghats in modifying the amount of the south-west monsoon rain, is perhaps no where more strikingly shewn than in the north-western parts of the Satara territory. If we draw a nearly straight line from west to east, from Mahableshtar on the summit of the Ghats to Phultun—a distance of little more than forty miles—we shall find at the commencement of the line, a rain-fall of 240 inches, at an altitude of 4500 feet—180 inches at Sindola, a mile distant, and elevated 4600 feet—50 inches at Punchgunnee, at a further distance of 11 miles, and an elevation of 4000 feet—25 inches at Wye, four miles further on, and 2300 feet in height—while at the extremity of the line at Phultun, and about the same level as Wye, the quantity is reduced to 7 or 8 inches. Were the line extended to a further distance of 20 miles towards Indapoor, we should probably find the regular influence of the south-west monsoon to have nearly ceased, to be renewed again as we advanced towards the extremity of the range of hills running south-east from Ahmednuggur. If in addition to the pluviometrical results obtained within the limits of the Satara territory, we had the means of extending the sphere of observation over the Concan and the corresponding portion of the Deccan, with the intervening range of Ghats, much important information might be obtained, not only regarding the general distribution of rain throughout these provinces in different years, but also in relation to the comparative scantiness or abundance of the same Monsoon in different adjoining districts. The remarkable influence of the Ghats on the distribution of the south-west monsoon rain on the countries on either side of these mountains, is well known; but this influence is not always the same. We find that the Concan and the Deccan monsoons vary, in different years, not only in respect of the quantity of rain, but also in their relative proportions to each other, as well as to the amount that falls on the intervening mountains; and we are ignorant of the laws on which these differences depend.

I regret that I have been unable to procure any official returns to illustrate this very interesting subject of enquiry; but I have been favoured with some private registers, the accuracy of which may be relied on.* These observations are much too limited in point of num-

* For the observations made at Rutnagherry, Tanna, Dapolee, Kolapoor, Poona, Nasick, Dharwar, and Ahmednuggur, I am indebted respectively to Doctors Maitland, Winchester, White, Broughton, Gray, Costelloe, Arbuckle, and Manisty.

ber and extent, to admit the deduction of any general conclusions from them ; but they may be useful to those who may have opportunity and inclination for prosecuting the enquiry. The subject is one, the investigation of which holds out the promise of very interesting results.

The following Table exhibits the fall of rain during the years 1844, 1845, 1846, and 1847, (except where otherwise specified) at the several places named, which are arranged according to their respective distances from the western coast.

Rutnagherry and Bombay—on the sea-coast.

Tanna and Dapoolee—in the Concan, between the coast and the western base of the Ghats.

Kandalla and Malcolm Peth — on the summit of the range of Ghats.

Panchgunnee—on one of the eastern branches of the Ghats.

Satara, Kolapoor, Poona, Nassick, Belgaum, and Dharwar—near the western border of the Deccan ; and Phultun, Ahmednuggur and Sholapoor—more in-land.

Table shewing the monthly fall of rain at the undermentioned places, in the year 1844-5-6-7.

Place of observation.	SEA COAST.						CONCAN.						WESTERN GHATS SUMMIT.						WESTERN GHATS. (E. BRANCH.)		
	Bombay. (Sea level.)			Rutnagherry. (150 feet.)			Tanna. (Sea level.)			Dapolee. (900 feet.)			Khandalla. (1740 feet)			Malcolm Peth. (4500 feet.)			Punchgunnee. (4000 feet.)		
	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1833.	1835.	1844.	1845.	1846.	1847.	1835.	1842.	1843.
Years of observation.	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1833.	1835.	1844.	1845.	1846.	1847.	1835.	1842.	1843.
Months.	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1844.	1845.	1846.	1847.	1833.	1835.	1844.	1845.	1846.	1847.	1835.	1842.	1843.
January.....	14.17	19.70	31.71	35.47	19.80	29.23	59.20	58.00	26.57	28.89	39.76	45.00	..	..	..	..	..	..	..	..	..
February.....	35.52	20.44	40.56	16.80	33.55	29.83	51.72	28.81	44.09	31.28	57.72	20.60	..	..	..	..	..	..	..	..	..
March.....	6.55	6.56	5.60	8.92	17.03	11.35	13.27	21.44	15.49	15.64	13.59	25.03	..	..	..	..	..	..	..	..	..
April.....	9.16	8.03	8.45	5.80	10.70	10.95	16.96	6.03	12.39	12.02	22.90	14.20	..	..	..	..	..	..	..	..	..
May.....	..	..	1.16	0.32	6.69	6.92	4.36	3.61	..	..	..	..	..	..	..	..	..	..	..	..	..
June.....	..	..	..	..	..	..	..	9.97	..	..	..	..	..	..	..	..	..	..	..	..	..
July.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
August.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
September.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
October.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
November.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
December.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total of each year. }	65.40	54.73	87.48	67.31	87.77	88.28	145.51	133.65	98.54	87.83	133.97	104.83	144.43	103.75	262.32	249.93	238.34	218.80	50.54	48.67	52.80
Average yearly fall. }	68.73			114.55			106.16			134.96			141.59			254.84			50.69		

Table shewing the monthly fall of rain at the undermentioned places, in the year 1844-5-6-7.

Places of observation.		DECCAN.					DECCAN.				
		Sattara. (2320 feet.)					Poona. (1842 feet.)				
		1844.	1845.	1846.	1847.		1844.	1845.	1846.	1847.	Nassik.
Years of observation.	Months.	Kolapoor.									
January.....	0.03	0.04	0.18	..	..	..	..	..	..	..	..
February.....	0.07	0.06	..	0.18	..	..	..	..	..	..	..
March.....	1.02	0.01	..	10.88	..	..	..	..	..	..	..
April.....	1.16	..	3.49	0.39	..	..	..	..	..	..	..
May.....	..	..	..	..	..	..	..	..	..	..	..
June.....	9.87	6.04	10.49	3.77	1.62	(22nd to 30th)	5.91	3.22	8.79	2.79	4.35
July.....	11.72	7.77	16.04	6.28	6.40	..	4.29	2.78	5.85	2.71	11.26
August.....	4.41	11.91	2.13	2.68	3.75	..	1.07	1.66	1.10	1.48	2.88
September.....	4.12	9.71	0.77	3.55	0.82	..	2.92	5.55	1.46	2.11	2.63
October.....	3.55	2.70	2.98	5.25	4.72	..	..	1.13	4.73	0.87	0.75
November.....	..	2.00	0.98	8.00	3.43	..	..	..	1.92	5.09	..
December.....	0.11	..	2.46	0.05	..	..	..	..	0.23	..	..
Total of each year.....	36.06	40.24	39.52	40.98	20.74	..	14.19	14.34	25.35	22.21	25.80
Average yearly fall.....	..	..	39.20	..	20.74	..	..	19.02	..	..	26.72

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.	(1900 feet.)
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	..	..	0.04	..	..	..	..	..	..	..
February.....	..	..	3.0	5.84	2.32	..	..	..	..	..	..
March.....	..	..	5.30	5.14	2.20	..	..	..	..	..	..
April.....	3.10	..	4.35	4.15	7.85	..	..	..	..	..	..
May.....	..	..	7.35	4.15	7.34	..	..	..	..	..	..
June.....	10.90	..	14.34	13.55	7.90	..	..	..	..	..	..
July.....	18.50	..	11.20	4.65	3.79	..	..	..	..	..	..
August.....	4.90	..	11.20	1.04	6.72	..	..	..	..	..	..
September.....	3.50	..	8.70	5.10	6.49	..	..	..	..	..	..
October.....	6.78	..	1.15	5.9	3.32	..	..	..	..	..	..
November.....	3.78	..	3.45	..	2.42	..	..	..	..	..	..
December.....	..	..	..	..	..	..	..	..	..	..	..
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	..	..	48.90	..	38.81	..	..	..	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	48.90	..	38.81	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	48.90	..	38.81	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	48.90	..	38.81	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	48.90	..	38.81	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
Average yearly fall.....	48.90	..	38.81	19.56	..	31.83

Places of observation.		DECCAN.					DECCAN.				
		Belgaum. (2000 feet.)					Phultun.				
		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32
March.....	5.30	5.14	2.20
April.....	3.10	..	4.35	4.15	7.85
May.....	7.35	4.15	7.34
June.....	10.90	..	14.34	13.55	7.90
July.....	18.50	..	11.20	4.65	3.79
August.....	4.90	..	11.20	1.04	6.72
September.....	3.50	..	8.70	5.10	6.49
October.....	6.78	..	1.15	5.9	3.32
November.....	3.78	..	3.45	..	2.42
December.....
Total of each year.....	51.46	51.74	50.84	41.57	32.75	39.50	48.91	34.9	18.09	24.04	19.53
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		1841.	1842.	1843.	1847.		1846.	1847.	1844.	1845.	1846.
Years of observation.	Months.	Dharwar.					Ahmednuggur.				
January.....	0.20	0.04
February.....	3.0	5.84	2.32</	

If we arrange these different localities according to their respective supplies of rain, during the years specified, they will stand as follows :—

Malcolm Peth.....	254	inches.
Khandalla.....	141	"
Dapoollee.....	134	"
Rutnagherry.....	114	"
Tannah.....	106	"
Bombay.....	68	"
Punchgunnee.....	50	"
Belgaum.....	48	"
Satara.....	39	"
Dharwar.....	38	"
Sholapoor.....	32	"
Nassick.....	26	"
Ahmednuggur.....	21	"
Kolapoor.....	20	"
Poona.....	19	"
Phultun.....	19	"

Thus it appears that the fall of south-west rain is greatest on the summit of the Ghats, even at points (such as Khandalla) where the mountains are depressed below the general level of this part of the Deccan, and that it decreases from thence to the Sea coast on the one side, and to the Deccan, in a greatly increased ratio, on the other. The rain, further, increases in quantity along the coast from north to south.

It is to be regretted that the returns from some of the places included in the preceding Table are limited to the months of the south-west monsoon, and do not therefore exhibit the depth of rain that falls in what is usually termed the fair season. From those registers in which the fall for the entire year is given, compared with information derived from other sources, there is reason to think that both the absolute and relative quantity of south-east rain increases from east to west, (subject always to the disturbing influence of peculiarities of local position) and thus follows nearly an inverse order to that of the south-west monsoon. But more extended observation is required to enable us to trace the progression of either monsoon with any thing like accuracy.

Passing from the general distribution of rain to its local fluctuations from year to year, we find the greatest uniformity at Nassik, Punchgunnee, and Satara, and the greatest relative amount of variation at Poona—the difference between the maximum and minimum yearly fall being, at Nassik only 2 inches on a mean fall of 26 inches, and at Punchgunnee and Satara 4 inches on an annual average of 50 and 39 inches respectively ; while at Poona the difference amounts to 11 inches on a yearly average of 19. We further find, from the

foregoing Table, that the most abundant monsoon on the coast, at Malcolm Peth, and at Poona (that of 1846) was the scantiest at Satara; while the year of heaviest fall at Satara and Ahmednuggur, proved the least abundant one at Dapoollee and Malcolm Peth.

I take leave of the subject with the following abstract of the yearly depth of rain that has fallen on the coast at Bombay, and on the summit of the Ghats at Malcolm Peth, during the last twenty years.

COMPARATIVE FALL OF RAIN AT BOMBAY AND MALCOLM PETH
FROM 1829 TO 1848 INCLUSIVE.

Years.	Bombay.	Malcolm Peth.
1829	65.65	257.06
1830	71.86	232.93
1831	101.83	185.32
1832	74.09	226.87
1833	71.39	203.74
1834	70.47	297.41
1835	62.61	226.71
1836	87.99	213.56
1837	64.58	267.76
1838	50.78	180.17
1839	62.62	233.23
1840	63.15	281.43
1841	71.49	281.04
1842	97.16	304.90
1843	59.27	235.67
1844	65.40	262.32
1845	54.73	249.93
1846	87.48	288.34
1847	67.31	218.83
1848	78.37	245.01
Total fall in 20 years.....	119 feet	414½ feet
Average yearly fall.....	71¼ inches.	246½ inches.

From the foregoing statement it will be observed that,

In 3 years (1841, 1842, and 1846) the fall of rain was in excess of the average at both places.

In 4 years (1835, 1838, 1839, and 1847) it was below the average at both places.

In 6 years (1830, 1831, 1832, 1833, 1836, and 1848) it was in excess at Bombay and below the average at Malcolm Peth.

In 7 years (1829, 1834, 1837, 1840, 1843, 1844, and 1855) it was below the average at Bombay, and in excess at Malcolm Peth.

It will further be seen that, the year of most abundant rain on the coast (that of 1831) was, with one exception, the scantiest on the

summit of the Ghats ; while, on the other hand, the heaviest Ghat monsoon (that of 1842) was also, with the exception of 1831, the heaviest monsoon on the Coast.

2 DISEASES OF SATARA.

Diseases incident to Europeans.—From this digression I now proceed to notice the prevalent Diseases in this part of the Deccan. From the period of its occupation as a British Station, Satara has proved singularly healthy to European Officers and their families. FEVERS are of very rare occurrence, except in the cases of those who have previously suffered from the disease in Guzerat, Sinde and other malarious districts.. In the latter instances, unless precautionary measures are used, patients are for some time liable to recurrences of Intermittent fever at the springs ; but not more so at one period of the year than at another. In such cases the fever is apt to become complicated with bowel disorder, sometimes gradually passing into sub-acute Dysentery—or with arterial excitement, or venous congestion of the liver. When a case of Primary Remittent fever occurs at this station, it is generally of an insidious and dangerous character. It is usually attended in its progress with much cerebral excitement, and such fevers are marked by suspension, rather than positive disorder, of the abdominal secretions.

Sporadic BOWEL COMPLAINTS, at the setting in of the monsoon, are much less common here than at Poona—a result which we should not have anticipated from theory. DYSENTERY is of rare occurrence. It is usually attended with more marked indication of abdominal venous plethora than on the sea coast, and admits of a more free use of local depletion and of aperients combined with opium.

Diseases of *debility* are not so common as in the low country.

DRACUNCULUS, though a prevalent disease among natives (as will presently be shewn) both in the Town and the Cantonment, very rarely affects European officers or their families.

This station, from its geographical position, affords unusual facilities for obtaining change of climate for the preservation or restoration of health. Of the two great classes of climate usually had recourse to by invalids in this country—the coast and the hill climates—Bombay is distant only a hundred and thirty miles, and the other parts of the Coast about half that distance ; while Mahableshtar is accessible in a night, and the Satara hill-fort in less than an hour.

Remittent fevers, bowel complaints, and hepatic affections contracted at this station, generally derive great and almost immediate benefit from change of climate to the sea coast ; while dyspeptic disorders, cases of constitutional debility, simple-intermittent fever, incipient tubercular phthisis, (in the hot season), and the greater number of infantile disorders, are usually benefitted by a short residence on the Mahableshwar Hills. To those who are unable to visit Mahableshwar, or in cases requiring removal before the opening of the season at that station, a change to the Satara hill-fort, (which is elevated a thousand feet above the station) is often very serviceable, particularly in the affections of childhood.

Satara is occasionally resorted to during the monsoon, by patients from Guzerat, Scinde, or the sea coast, for the benefit of their health ; although its greater distance from Bombay, and other causes, render it by no means so much frequented as Poona. The two first of these classes of patients are usually cases of intermittent fever, or of some of its sequelæ ; the latter consists chiefly of bowel complaints, or incipient pulmonary phthisis.

Diseases incident to Natives.—The few observations, about to be submitted, on the diseases most prevalent among Natives at Satara and in its immediate neighbourhood, are chiefly deduced from the cases that have presented themselves, during the last four years, at the Hospital and Dispensary of His Highness the Raja of Satara. The cases thus treated, as has been shewn in the preceding Report, have amounted to 12,649 ; of whom 2368 were in-patients, and the remainder out-patients, of the Institution. It is important to remark, however, that a numerical register of the different diseases that have thus come under treatment would afford an imperfect, and in some respects an erroneous, idea of the relative prevalence of different diseases among the native community generally at Satara, or indeed among any particular class of that community. Independently of the obvious fact, that it is the poorer classes who constitute the principal applicants at a public Hospital, it is to be remarked that the subjects of certain diseases apply for medical aid more frequently and in greater numbers than those of others. Guinea Worm, for example, is a very common disease here ; and yet only 317 cases appear on the records. This discrepancy between the apparent and the actual prevalence of this disease, arises from the circumstance that, the native practitioners of the place are very successful in extracting the worm ; and, consequently, patients affected with the disease do not

resort to the Hospital, unless it become complicated with considerable inflammation, or with tedious or extensive suppuration. In other diseases again (as Intermittent fever), patients apply in comparatively large numbers, from the experience of the greater relief to be expected from European than from Native treatment, and more particularly from the exhibition of quinine. I have endeavoured to avoid these and some other analogous causes of fallacy, by comparing the result of my hospital experience with the returns of the Cantonment Hospital, and with information derived from other sources.

FEVERS.—Fevers in point of frequency stand at the head of the list of Satara diseases. They amount in number to nearly one-sixth of the whole cases that have been treated. They prevail more or less throughout the cold and the rainy months; but they are one-third more numerous during October and November than in the other months of these two seasons, and are of much rarer occurrence in the hot season, than at any other period of the year.

Fevers of the *Intermittent* type constitute by far the most numerous class. They are in general very simple and very tractable, usually assume the quotidian type in the rains, and the tertian form in the subsequent months; and are rarely complicated with visceral disease. These two varieties very frequently pass into each other, and in a few instances, I have met with the successive appearance of the quartan, tertian, and quotidian types in the same patients.

The *Remittent* fevers of Satara may be reduced to two varieties—the simple and the complicated. Simple Remittent Fever sometimes blends itself so closely with quotidian intermittent, that they can scarcely be distinguished from each other. I allude particularly to those cases of the latter fever in which there is imperfect intermission (marked by the continuance of more or less quickness of pulse and moist heat of skin), and the convalescence of which is attended with evening febricula and night perspirations. In short, a close observation of the fevers prevailing in the native community has satisfied me, that the Remittent fever of this place is, in the words of Dr. Alison, only the “highest grade of the Intermittent.”*

The complicated Remittent fever of Satara, though not a very common disease, is of an insidious character, and if neglected, frequently proves fatal. When it occurs in Europeans, it is usually com-

* It is unnecessary to advert to those cases of simple Ephemeral fever, of one or two days duration—arising sometimes from no very obvious cause—which are in general promptly checked by an emetic and purgative.

bined (as has been before stated) with cerebral symptoms : but, in natives, a bronchial affection, coming on gradually and insidiously, is the most frequent concomitant, and next to this in frequency is its complication with cerebral symptoms. In the first of this class of cases, (the *bronchial*) in addition to the usual febrile symptoms, the patient, after some days of neglected or improperly-treated fever, is found sitting up, pretty firmly perhaps, in his cot, with staring eyes, the alæ nasi in frequent motion, and a countenance altogether expressive of a mixture of anxiety and vacancy. He probably does not think himself very ill ; but the breathing is observed to be quick, short, and anxious, with an obscure mucous rattle ; there is a short and not troublesome cough attended by little or no pain of chest ; the tongue is brown and parched ; and occasionally there is complaint of giddiness. To these symptoms gradually succeeds stupor, and the patient dies from a combination of asphyxia and coma. In children the characteristic symptom is the hurried abdominal breathing.

The *cerebral* complication of fever is characterized from the first, in its best marked forms, by a greater degree of head-ache and heat of head than usual, particularly over the forehead ; by excessive redness of the eyes, which has always appeared to me to be more prominent in the Native than in the European subject ; and by a peculiar restlessness, wakefulness, and sometimes light headedness, which are gradually followed by more or less stupor. The patient in this form of the disease, unlike the subject of the bronchial fever, lies prostrate on his back. The coma at first may only be present during the febrile exacerbation, but soon becomes permanent. Distinct from this class of cases, are the more protracted fevers, in which stupor and coma gradually supervene in connection with Asthenia without any antecedent indications of morbid vascular action in the head. The *abdominal* complication of fever—either with hepatic or splenic congestion, or with gastric, diarrhœal, or dysenteric symptoms—is a comparatively rare occurrence at Satara.

On the treatment of *simple* Remittent fever it is unnecessary to offer any observations. In the *bronchial* form of fever, in addition to the general treatment adopted for simple fever, and after the appropriate use of local depletion, I have principally relied upon repeated stimulant emetics (of which ipecacuan with the sesquicarbonate of ammonia is perhaps the best), and the application of small blisters to the chest and between the shoulders : taking the earliest advantage of

even an imperfect febrile remission to administer quinine. In the latter stage of the fever—when the pulse is weak, and the mucous rattle extends over the chest—a strong decoction of bark, combined with full doses of ammonia, is given every two or three hours, and the strength supported by the administration, at frequent and stated intervals, of small quantities of sago congee with port wine. Much of the success indeed, of the treatment of all the forms of Remittent fever, in Natives, depends, upon watchful nursing, and the careful and judicious exhibition of mild nourishment.

In the *cerebral* complication of fever, the period for the safe and beneficial application of leeches soon passes: it is, therefore, of great importance to meet the first occurrence of cerebral symptoms by early but moderate local depletion. This should be accompanied and followed by free purgation, cold applications to the shaved head, and blistering the nape of the neck. In the symptomatic cerebral affections of fever, I have found, in native patients, more frequent and more decided benefit from blistering than from leeching, to which natives are in general very averse. I would add that the medical and dietetic treatment should be perseveringly followed up, as we find that recovery frequently takes place under the most unpromising circumstances even after the presence of profound coma: and quinine combined with small quantities of sulphate of magnesia, (so as to act on the secretory vessels of the bowels and kidneys) should be exhibited on the slightest remission of the symptoms. When more or less stupor continues during the remission of the other symptoms, calomel, antimony and quinine should be administered in small and frequent repeated doses, and the system supported by mild nourishing food. In those cases where stupor, passing into coma, occurs in the latter stage of fever, in connection with Asthenia, the administration of wine, and small blisters to the head constitute the two most important remedies. The *abdominal* forms of fever require no observation. They are rarely met with, and in general readily yield to simple remedies.

Cutaneous Diseases.—Next to fevers, in point of frequency though not of importance, are Cutaneous Diseases. They constitute about one-tenth of the diseases treated, but consist in great proportion, of various forms and combinations of pustular and herpetic eruptions. Scald head is a very common disease with children and often proves very intractable. Tubercular Leprosy is tolerably common; but cases of this disease are treated as out-patients, and are not received into

the Satara Hospital. Individuals labouring under white Leprosy are occasionally met with, though not as applicants for medical advice. Of confirmed Elephantiasis (Warool) I have met with only three cases.

Of the febrile eruptions,—Small-pox, and Chicken-pox are the only two that I have met with. The prevalence of the former disease has been gradually declining since the introduction of Vaccination into the interior districts of the Satara territory, as well as into the villages of the different Jagheerdars. The sequelæ of the disease, however, are frequently presented, particularly in scrofulous subjects, in the form of destructive disease of the eye, and troublesome ulcers in other parts of the body. No case of Measles has fallen under my observation.

CHOLERA.—For one or more months of each of the years 1844, 1845, and 1846, Epidemic Cholera prevailed in the Satara territory.

It was very prevalent, and very fatal, in the town and surrounding villages in the month of July 1844; again in the latter half of May, and through the months of June and July, of 1845, when it was computed that about 1000 fatal cases occurred in the town alone; and lastly in March 1846, in which month it was particularly fatal at Kur-rar, Jhutt, Beejapoor, and Punderpoor, and in a less degree at Satara. During the current year (1847) the Satara districts have been entirely free from the disease, no case having occurred within my knowledge.

I need scarcely say that I have nothing to contribute to the pathology or the treatment of this formidable disease. Having been strongly impressed, however, with the bad effects arising from the loss of time, the fatigue, and the exposure, necessarily attendant upon the removal of cholera patients to Hospital, I very soon after my arrival here adopted the plan of having the patients treated in their own huts whenever this was practicable. The good effects of this system of management have been stated in the foregoing Report, and require no further notice in this place.

In regard to the medical treatment of the disease—I am satisfied, from experience, that whatever medicine is given for the relief of the vomiting and purging (including the use of opium) should be administered in the form of pills; while the remedies used for constitutional collapse (inclusive of simple nourishing food, which forms a most important element of the treatment) should be in a fluid form. In laying down rules for the guidance of the Native Assistants in the manage-

ment of this disease, I have always endeavoured to draw a marked line of distinction between these two classes of symptoms--the local and the constitutional-- and to prescribe distinct remedies for each, to be given according as the one predominates over the other, for they do not always bear a direct ratio to each other, either in severity or duration.

It is worthy of remark, that, during the prevalence of cholera, the natives who came to the Dispensary for medicine almost invariably applied for Cholera *pills*, and very rarely asked for the Cholera *mixture*; the former being generally retained on the stomach, the latter rejected. According to my experience, indeed, stimulant remedies are most beneficial, and are certainly best retained on the stomach, when given in combination with some nutritive fluid; and I know no combination more generally applicable than Port wine or Brandy, in warm sago congee.

The Epidemic of 1846 was followed by the prevalence of Bilious Cholera to an unusual extent. During the month of July of that year, 148 cases were treated, and yielded to the usual simple remedies.

RHEUMATISM.—Acute Rheumatism, or rheumatic fever, is very rarely met with; but the Sub-Acute, and still more the Chronic forms of the disease, are of frequent occurrence, though not so obstinate in their character as they are stated to be in some other parts of the Presidency. Sub-Acute rheumatic affections have generally yielded in a few days to the free use of colchicum combined with saline purgatives, and to the application of Leeches to the affected joints, or cupping when the muscles are the seat of disease. In the Chronic and Cachectic varieties of the disease I have been disappointed to find that the Iodide of Potassium has been less decidedly beneficial, than when administered to Europeans under similar affections; but it has been equally efficacious in cases of periodical Rheumatism.

DYSPEPSIA.—Dyspeptic affections are of very common occurrence at Satara and in the surrounding villages. If we include under this head the cases of torpid bowels, which it is often difficult to separate from indigestion, dyspeptic complaints will amount to a tenth of the total number of diseases. Their prevalence is probably to be ascribed to the watery vegetable diet of the people;* and this supposition is somewhat strengthened by the fact, that the prevalent forms of

* Dr. Gibson, who notices the general prevalence of Dyspeptic complaints throughout the Deccan, throws out the conjecture of their possible dependence on the quantity of opium so generally administered in infancy. *Bombay Med: Trans*: ii. 211.

the disease are those which principally affect the poorer classes of Scotland, who also live almost entirely on a diet composed of vegetables and unleavened bread, made of the inferior kinds of grain.

The dyspeptic disorders so generally met with at Satara are of two kinds. The first of these is the idiopathic Dyspepsia of Cullen, and requires no notice, further than to observe that it assumes a simple and less complicated form, than is usually met with in Europeans in India.

The second and (I think) the most frequent stomach disorder is Pyrosis, which occurs in two forms or rather stages. The first is termed by the Natives *Aml Peet* (अम्लपित्त), and corresponds somewhat with the Gastralgia of European Nosology. A sense of burning (not pain) in the pit of the stomach, and in the lower part of the gullet is the prominent symptom; it generally occasions much distress and anxiety to the patient, and is often attended with loss of flesh; no remedy gives more relief in this somewhat obstinate complaint than the solution of Potass combined with Tincture of Calumba, regulating the bowels at the same time with small doses of Gregory's powder.

This affection, if not removed, generally terminates in well marked Pyrosis, which is of frequent occurrence in this part of the Decan, and corresponds very exactly in its character with Cullen's definition of the disease. It is almost invariably relieved by the Trisnitate of Bismth in combination with Calumba powder, although the relief is not always permanent.

I have met with several examples of a form of chronic disease of the digestive organs, the exact nature and seat of which I have not been able to ascertain. It is characterized at first by a diffused puffiness, and afterwards more circumscribed tumefaction, anterior to the cartilage of the 8th or 9th rib of the right side, apparently in the site of the upper portion of the Duodenum, and is attended with the usual symptoms of deranged digestion. All the cases I have seen had previously been treated by Escharotics, chiefly by the application of marking nut* (Beeba) without any benefit. In no case have I been successful in removing the disease, though some relief has usually been given to the dyspeptic symptoms.

BOWEL COMPLAINTS.—*Dysentery* is neither a frequent nor a formidable disease at Satara. It principally occurs during the rainy season, in a simple idiopathic form, unconnected with hepatic disease; and, as has been before stated, is rarely met with as a concomitant of

* Semicarpus Anacardium.

the fevers of this place. In the great majority of cases it yields, without either general or local depletion, to the exhibition of gentle aperients (of which castor oil, blue pill, and ipecacuan* are the most useful) in combination with opiates.

Diarrhœa, also,—in its primary forms, is chiefly a disease of the rainy season, and is in general easily checked by the usual simple remedies. But the most numerous cases of this disease which present themselves, are those which are connected with pulmonary tubercles, enlarged mesenteric glands, and other visceral diseases. In such cases the organic lesion has usually assumed a latent form ; and the bowel complaint is less amenable to medicine, and runs on to a fatal termination with greater celerity, in the Native than in the European subject.

DRACUNCULUS.—Guinea Worm is a very common disease at Satara, although, for the reasons formerly stated, the cases which present themselves for medical treatment are less numerous than those of some other diseases that are absolutely less prevalent. It occurs chiefly in the months of March, April, May, and June—the cases which occur in those four months constituting three fourths of the entire number throughout the year.

A remarkable fact connected with the history of Guinea Worm at this station is, that the number of cases occurring in each of the two Native Regiments that have been stationed here, in succession, during the last six years, has always increased during each successive year after their residence ; while, in the Raja's Infantry Regiment permanently stationed at Satara, there has been comparatively little variation in the prevalence of the disease (which has indeed rather diminished than increased) from year to year. This will appear more clearly from the annexed Table, which shews the monthly admissions from Guinea-worm in the 2d Grenadier Regiment Native Infantry for each of the years 1842, 1843, and 1844, and in the 6th Regiment N. I. for the years 1845, 1846, and 1847 ; as well as the Raja's Infantry Regiment during each of these six years ; together with the total admissions from all diseases in each of these Regiments for the same period. It is to be observed, that the water used by the sepoy of the three Regiments was chiefly that of wells.

* The principle on which the efficiency of Ipecacuan in Dysentery depends, was known to Cullen : " It (Ipecacuan) proves only useful when so managed as to operate chiefly by stool." First Lines. 1081.

Table shewing the Monthly Admissions from Guinea worm in the Native Regiments in the Cantonment and the Town of Satara respectively, for the years 1842-3-4-5-6-7; with the total admissions for the same period.

Troops and Station.	2nd. Grenadier Regt. N. I. (Cantonment.)				6th Regiment N. I. (Cantonment.)				His Highness' Infantry Regiment. (Town).					Total in each month.
Years.	1842.	1843.	1844.	1845.	1846.	1847.	1842.	1843.	1844.	1845.	1846.	1847.		
..... (Months.)														
January .....	..	1	3	..	..	2	..	..	..	5	..	..	11
February .....	..	1	3	..	..	2	7	1	1	4	2	5	26
March .....	..	9	1	..	1	1	7	10	10	5	3	6	53
April	2	9	15	3	3	1	14	16	14	14	4	9	94	
May	3	8	43	2	1	4	17	3	15	17	6	6	125	
June	1	12	43	..	3	5	5	3	4	13	6	7	102	
July	3	6	..	1	..	3	5	9	1	2	3	3	36	
August	1	3	..	..	1	4	4	13	1	3	1	4	35
September .....	..	4	..	..	3	7	4	2	2	1	1	1	25
October	1	1	..	..	3	6	8	5	..	2	2	2	29
November	1	..	..	3	4	5	..	2	1	..	1	..	17
December	1	4	..	..	6	1	..	4	..	2	..	1	19
Total admissions from Guinea } worm	13	58	103	9	25	41	71	68	49	58	29	44	472	
Total admissions from all dis- } eases	1376	1302	508	500	561	464	303	336	277	386	379	440	6832	
Average strength of the Regt..	980	980	1001	909	1007	965	710	710	707	709	711	716		

Native practitioners and barbers extract the worm with considerable dexterity and success, when it is detected early, and is seated in the fleshy part of the extremity; and it is generally when the worm is seated in the knee joint, or gets involved in the tendinous part of the foot, or when in consequence of the breaking of a portion of it, or from other causes, it becomes complicated with local and constitutional irritation, that patients apply for medical advice. At periods when ague has been prevalent, I have remarked that the symptomatic fever of *Dracunculus* assumed an intermittent type, both tertian and quotidian, and after resisting the use of Quinine, the specific for idiopathic ague, it has yielded to a few doses of blue pill and opium.

In cases attended with diffuse inflammation of the limb, whether œdematous or suppurative, I have always confined the local treatment to leeches,* fomentations, and poultices, without having recourse to the early and free incisions recommended by some writers. I have had the opportunity of observing the two modes of treatment practised extensively at two separate periods in the same Hospital, and was much struck by the superiority of the former over the latter system, which in the great majority of cases was followed by painful, protracted, and in some instances malignant ulceration.

SCROFULOUS AFFECTIONS are of frequent occurrence, and assume a great variety of forms. The disease has most commonly shewn itself in chronic inflammatory swellings of the cervical glands—Scrofulous abscesses and ulcers† in different parts of the body—painful and protracted suppuration of the ears—and scrofulous ophthalmia, terminating often in permanent morbid lesions, and more rarely in utter disorganization, of the eye. Scrofula, in these different forms principally affects children. Only one case of scrofulous white swelling has come under my observation.

PULMONARY DISEASES.—Only three cases of *Pneumonia* and six of *Phthisis Pulmonalis* appear in the Hospital Returns. In regard to the latter disease, however, it is to be observed that many cases have presented themselves in which the pulmonary symptoms were marked by colliquative diarrhœa, and which were returned under the head of Diarrhœa.

* The natives of this place, who so generally object to the application of Leeches in Ophthalmia, and in some cerebral diseases in which we are in the habit of prescribing them, never object to their use in inflammatory *Dracunculus*, but on the contrary, frequently apply for them; and almost invariably express themselves relieved by their application.

† A great proportion of the scrofulous cases are included in the Returns, under the head of “ulcers” and “ophthalmic affections.”

HUMID ASTHMA.—Is not unfrequently met among the aged. It is *generally* temporarily relieved by emetics of ipecacuan and sesquicarbonate of ammonia, warm plasters or a blister to the chest, and the use of pilulæ ipecac ; compositæ.

HEPATIC AFFECTIONS,—are of very rare occurrence. I have met with very few cases of enlarged liver, and only one instance of Hepatic Abscess. Patients frequently apply for medicine on account of what is termed biliousness, (*Peet*) as indicated chiefly by nausea and giddiness ; but many of these cases doubtless arise from simple gastric indigestion, and at all events are relieved by an emetic, or by one or two doses of compound jalap powder.

PALSY.—Paralytic affections are frequently met with. Hemiplegia is the most common form which the disease assumes, and, as has been remarked by Dr. Gibson in other parts of the Deccan, “the speech is much less frequently affected than in the same disease in Europe.”* In the cases, indeed, in which the speech has been affected, it has only been partially so ; for in no instance has it been completely lost until the patient was moribund. The disease is often attributed to a “stroke of the land wind,” and in very few instances has it succeeded to an attack of Apoplexy.† Its approach has generally been gradual, many of the cases in which one limb only has been affected, as well as some cases of imperfect Paraplegia, characterized more by impairment of sensation than of motion, have been the sequelæ of Rheumatism, and been accompanied with a cachectic state of the system.

In the various forms of Paralysis, after premising free purgation and blistering of the scalp,‡ the two remedies from which I have obtained most benefit have been an issue in the nape of the neck, and the cautious use of strychnia. The latter medicine seems to be of more extended utility among Natives than Europeans. The recoveries which take place under its administration, in rheumatic paralysis, and in those forms of the disease where there is only partial loss of motion, are often very striking and very satisfactory. Its use should, of course, be restricted to cases that are supposed to be unconnected with organic disease ; but a remarkable case occurred to me, a few months

* Bombay Med : Trans : ii 210.

† Only two cases of perfect apoplexy have presented themselves during the four years.

‡ In all paralytic affections, even when attended with indications of cerebral congestion, natives object most strongly to the application of Leeches to the head ; and I must own, that, in the few cases in which I have applied them, contrary to the wishes of the patients, the result has not been satisfactory. On the other hand, patients have very generally admitted the experience of more or less benefit from the application of blisters to the head

ago, of complete paralysis of the right side, with imperfect speech, difficulty of swallowing, and slight impairment of intellect, in which the use of the limbs and the freedom of speech and swallowing, were restored in seven weeks, under the use of strychnia, although the patient was readmitted into Hospital and died from general paralysis, without coma, within a month after he had been discharged as cured. It may admit of a doubt whether the strychnia, while it temporarily removed the paralytic symptoms in this case, may not at the same time have accelerated its fatal termination ; and the case is here adduced, therefore, simply to illustrate the remarkable powers of the medicine, and not for the purpose of recommending its exhibition in cases where there are grounds for inferring the existence of organic disease.

OTHER DISEASES.—Few other diseases seem to be deserving of particular notice from their number or importance. The discharge of Larvæ from the nose (*Antrum Maxillare*) and more rarely from the ear, is not at all an uncommon affection with natives. Their excretion in the former cases is preceded by a gnawing pain, which sometimes becomes excruciating—the nose is generally tense and somewhat swollen—and there is sometimes a discharge of sanious fluid or blood. Where the latter symptom is present, it indicates the nature of the disease ; but, in its absence, the diagnosis is often obscure in the early stage. I have seen upwards of a hundred of these Larvæ discharged, under the injection of diluted turpentine.

Young female patients frequently present themselves with two small pedunculated fleshy tumors growing out on each side of the upper part of the lobe of the ear, where it has been perforated for earrings. They are easily removed by the knife.

A common and troublesome complaint is the thickening and induration, with deep fissures, of the soles of the feet. It is generally attended with burning heat of the palms, and is frequently associated with stomach complaints. Dr. Gibson states this to be common complaint among the cultivators of Guzerat.*

Syphilitic affections cannot, I think, be considered as of very frequent occurrence—the total number treated being only 294. They are more commonly met with in religious mendicants than in any other class of the community ; and fistulous diseases are also very common among this class. Patients often present themselves with violent salivation and its effects, after the native administration of mercury in

* Bombay Med. Trans. i. 67.

Syphilis. Eczema mercuriale is a frequent consequence of the same treatment, and most frequently affects the lips and the verge of the arms—where it sometimes gives rise to very troublesome ulcers. Paraplegia is also an occasional result of the injudicious use of mercury. I have also met with a few cases of baldness, attributed to the use of native remedies, the nature of which was unknown.

The rapidity with which natives recover from the severest wounds, whether simple or lacerated, has been frequently exemplified in this Hospital. As instances, I may mention the case of a boy whose hand was dreadfully shattered by a sugar mill, laying bare the carpal and metacarpal bones to such an extent as seemed to render the preservation of the hand altogether hopeless. The patient, however, (fortunately for himself) refused to submit to amputation; and in the course of a few days granulation, sprung from the surfaces of the exposed bones with extraordinary rapidity, and a perfect cure was effected. The second case I would adduce was that of a boy who was brought to hospital with a penetrating wound of the abdominal parietes (caused by the goring of a bullock), from which *three feet* of intestine protruded. The intestine was returned, the wound stitched, and in a week the boy perfectly recovered without a single bad symptom.

In connection with this subject, I may mention that the anæsthetic powers of Ether have recently been tested in this Hospital with complete success, in a case of cancerous tumour occupying the temple and upper part of the cheek, the removal of which occupied nearly half an hour, during which period the patient remained perfectly insensible.

TABLE I.

Abstract of Diseases treated at the Hospital and Dispensary of His Highness the Raja of Satara in the years 1844, 1845, 1846, and 1847, with the total admissions in each month of the year.

Diseases.	Total.	January.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Apoplexy	3												
Asthma	157	15	15	13	10	2	9	13	11	29	14	14	12
Cephalalgia.....	335	29	13	19	21	24	40	35	32	32	45	23	25
Cholera, Bilious	182	1	1	7			1	151	16	2	1	15	
" Spasmodic	720	2	9	137	114	158	136	105	28	1	5	163	
Cutaneous Diseases	1423	150	141	96	53	85	66	82	134	167	163	118	
Cachexia	9	7	1					1					
Colica and Obstipatio	939	77	72	63	66	71	87	103	67	74	101	69	89
Cough	406	28	12	19	16	30	25	45	29	68	64	28	41
Diarrhea	311	16	11	24	27	26	36	55	22	22	37	21	14
Dropsical Affections.....	52	1	2	1		6	6	3	7	5	5	7	9
Dysentery	297	15	14	20	21	28	42	41	36	33	24	13	10
Dislocations and Sprains.....	263	16	25	27	11	22	19	16	23	25	23	30	26
Dracunculus.....	317	12	31	36	53	66	45	16	19	9	12	6	12
Dyspepsia.....	621	58	33	40	26	57	102	78	43	59	38	53	34
Fracture.....	29	1	4	2		3	2	3	1	4	6	1	1
Fever Remittent.....	104	3	5	8	3	2	22	9	15	10	15	4	8
" Intermittent	2079	156	137	131	159	135	213	181	165	164	188	197	153
Gonorrhœa.....	158	16	16	8	9	13	17	19	10	12	15	10	13
Hepatic Affections.....	18	3	1	1	3	4	1	1	3				
Inflammation External.....	751	53	54	61	72	76	54	63	59	63	71	75	50
" Thoracic.....	3			1	1					1			
Affection of the Urinary Organs.....	75	8	5	4	11	7	7	8	4	7	6	5	3
Mania.....	6			2				1		1			1
Ophthalmic Affection	245	14	21	11	10	28	30	22	22	22	24	27	14
Phthisis Pulmonalis	7	2	1		1	1		1			1		
Rheumatism.....	1112	99	93	78	85	95	102	99	100	110	99	91	61
Spleen	9	2						3	1	18		16	2
Syphilitic Affection, Primary.....	257	22	13	21	20	33	31	24	19		21	2	19
Secondary.....	37	3		3	5	3	1	2	11		3	2	4
Small "Pox.....	5			1		1	1				2		
Scrofula	9								1		1		3
Ulcers	937	110	40	95	64	68	64	72	62	69	82	110	101
Wounds.....	262	21	20	34	20	24	25	21	14	27	19	17	20
Other Diseases.....	524	60	38	45	27	38	36	32	80	33	46	43	42
Total.....	12565	1001	830	1011	912	1107	1222	1315	1034	1067	1138	1042	886

(Signed) J. MURRAY, Surgeon.

TABLE II.

Annual Return of Sick in the Hospital of His Highness the Raja of Satara's 1st Regiment of Infantry with Golundauze attached, during the year 1844.

DISEASES.	ADMITTED.												Total.	Discharged.	Died.	Remaining on the 31st Dec. 1844.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.				
Asthma .....	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..
Cholera, Bilious .....	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
" Spasmodic	1	..	3	1	1	..	1	1	1	1	1	..	10	10	3	..
Cutaneous Diseases	2	..	1	..	2	3	..	..	..	..	..	..	8	4	..	..
Diarrhoea .....	..	..	1	1	1	..	..	..	..	..	..	..	1	..	..	..
Dysentery .....	..	..	10	14	15	4	1	1	2	..	..	..	51	19	..	..
Dysentericus	5	8	9	5	4	2	10	5	3	16	5	12	85	76	1	..
Fever .....	..	..	..	..	1	2	..	1	1	..	..	3	4	4	..	..
{ Intermittent .....	..	..	..	..	..	..	..	..	1	..	..	..	9	4	3	..
{ Remittent .....	..	..	..	..	..	..	..	..	2	..	..	..	4	17	..	..
Hepatic Affections .....	..	..	..	..	..	1	..	..	1	..	..	..	1	1	..	..
Inflamations .....	..	..	..	4	..	..	..	3	2	..	4	..	17	17	..	..
Affections of the Urinary Organs .....	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..
Mania .....	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Ophthalmic Affections .....	..	..	..	1	2	1	..	..	..	..	1	..	5	5	..	..
Phthisis Pulmonalis .....	..	..	..	1	..	2	2	..	..	2	..	1	1	18	1	..
Rheumatism	2	..	3	1	4	..	..	..	..	..	..	..	4	16	..	..
Syphilitic Affections, Primary .....	..	..	..	1	..	..	1	..	..	1	1	1	5	3	..	..
Ulcers .....	..	..	..	1	2	..	1	1	..	..	..	..	5	3	..	..
Wounds .....	..	7	..	1	..	..	2	1	1	4	3	3	30	26	..	..
{ Other Diseases	4	..	..	1	1	..	..	2	2	..	..	..	2	6	..	..
{ Colica .....	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
{ Catarrh .....	..	..	1	..	..	..	..	..	2	..	..	..	1	1	..	..
{ Varicella .....	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..
{ Dyspepsia .....	..	..	2	..	..	..	..	..	..	..	..	..	2	1	..	..
Other Diseases .....	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	..
Total	12	16	32	30	34	315	20	14	14	26	18	22	267	240	8	19

Strength of the Regiment 708..... Ratio of Sickness to Strength.... 37.65 per cent.
 " of Deaths to Strength..... 1-12 "

TABLE III.

Annual Return of Sick in the Hospital of His Highness the Raja of Salara's 1st Regiment of Infantry with Golundauze attached, during the year 1845.

DISEASES.	ADMITTED.												Remained on the 31st Dec. 1844.	Remained on the 31st Dec. 1845.	Discharged.	Died.	Total.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.					
Asthma	2	..	..	1	..	..	1	..	1	1	..	1	..	..	5	..	5
Cholera, Bilious .....	..	..	..	..	1	2	1	..	..	..	..	..	..	..	2	..	2
" Spasmodic .....	..	..	..	2	2	..	3	6	3	5	..	..	..	..	4	1	4
Cutaneous Diseases	6	3	..	..	1	..	2	1	..	..	2	..	..	..	36	..	36
Diarrhea .....	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	..	4
Dysentery	3	1	1	3	1	2	1	1	2	..	..	..	..	..	15	..	15
Dropsical Affections .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	4
Dislocations and Sprains .....	..	1	1	4	17	13	2	3	1	2	..	2	..	..	58	..	58
Dracunculus	5	4	5	2	3	9	4	7	2	8	11	7	..	..	92	..	92
Fractures	10	11	10	2	3	2	1	..	1	1	..	3	..	..	14	..	14
Fevers	1	1	2	..	1	2	1	..	1	1	..	1	..	..	33	..	33
{ Intermittent	8	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
{ Remittent	2	..	..	..	..	..	..	..	..	..	..	..	..	..	14	..	14
Gonorrhœa .....	..	5	5	6	1	2	..	1	1	2	2	2	..	..	91	..	91
Inflammations .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
{ External .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	..	32
{ Cephalic .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
{ Thoracic .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Affections of the Urinary Organs .....	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1
Ophthalmic Affections .....	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	1
Rheumatism	5	2	3	1	1	3	..	2	3	3	1	..	..	..	26	..	26
Syphilitic Affections Primary	1	2	1	1	..	1	2	1	1	1	3	2	..	..	6	..	6
Ulcers	2	2	3	1	..	..	..	1	2	1	..	..	..	..	17	..	17
Wounds	4	2	2	..	..	..	1	1	..	..	2	3	..	..	13	..	13
{ Other Diseases .....	..	..	..	..	..	..	1	1	..	..	..	..	..	..	8	..	8
{ Colica	4	3	4	2	1	3	1	1	..	2	2	3	..	..	19	..	19
{ Dyspepsia .....	..	..	1	..	..	1	2	..	..	..	..	..	..	..	4	..	4
Total	45	33	40	24	28	38	21	24	22	26	22	27	309	11	357	1	369

Strength of the Regiment 710 Ratio of Sickness to Strength.... 51-98 per cent.
 " of Deaths to Strength..... 0-14 "

TABLE IV.

Annual Return of Sick in the Hospital of His Highness the Raja of Satara's 1st Regiment of Infantry, with Golundauze attached, during the year 1846.

DISEASES.	ADMITTED.												Total.	Discharged.	Died.	Remaining on the 31st Dec. 1846.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.				
Cholera, Bilious .....	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..	..
" Spasmodic .....	..	..	..	..	..	..	..	..	..	..	..	..	14	9	5	..
Cutaneous Diseases .....	..	..	..	..	..	..	..	..	..	..	..	..	14	14	..	..
Cough .....	..	1	2	1	..	..	..	1	1	3	3	..	1	6	..	..
Diarrhoea .....	..	..	1	1	..	..	..	1	..	..	..	..	5	5	..	..
Dysentery .....	..	..	3	4	6	6	3	1	1	2	1	..	9	8	1	..
Dropsical Affections .....	..	2	..	..	..	..	..	..	3	..	..	..	31	31	..	..
Dislocations and Sprains .....	..	1	2	1	5	3	..	1	..	2	5	2	25	24	..	1
Dyspepsia	3	..	3	1	1	1	2	..	..	1	1	1	5	5	..	..
Colica and Obstipation	2	10	8	3	3	3	8	6	19	12	18	5	17	17	..	..
Fevers	1	10	6	1	10	10	8	..	..	..	..	..	116	115	..	1
Intermittent	1	2	..	1	1	..	..	..	..	..	..	..	4	4	..	..
Remittent .....	..	2	..	1	3	..	..	1	4	4	4	1	32	32	..	..
Gonorrhoea .....	..	3	3	2	3	..	2	1	..	1	..	..	3	1	..	..
Inflammations	1	3	3	1	..	..	..	..	..	1	..	..	6	6	..	..
External	4	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Cephalic	1	..	1	1	..	..	..	..	..	..	..	..	1	1	..	..
Thoracic .....	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Affections of the Urinary Organs .....	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Ophthalmic Affections	1	1	..	..	..	..	..	..	..	2	1	..	6	6	..	..
Rheumatism .....	..	1	..	2	1	..	..	1	..	1	4	2	12	11	..	1
Spleen .....	..	1	..	..	..	..	..	..	1	..	..	..	8	8	..	..
Syphilic Affections .....	..	..	..	2	2	1	..	..	1	2	..	..	8	8	..	..
Primary .....	..	..	..	2	2	1	..	..	..	..	..	..	..	..	..	..
Secondary .....	..	1	..	2	3	1	..	4	2	4	5	2	25	23	..	2
Wounds	2	..	2	1	..	..	..	..	..	..	..	..	7	7	..	..
Debility	3	..	..	..	..	..	..	3	..	1	1	..	5	3	1	1
Hernia .....	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..
Other Diseases .....	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..
Nictolopia .....	..	1	..	..	..	2	..	..	1	..	..	..	1	1	..	..
Sore Mouth .....	..	..	1	..	..	..	..	..	..	..	..	..	3	3	..	..
Odontalgia .....	..	..	..	..	..	1	..	..	..	..	..	..	2	2	..	..
Total	11	24	28	24	38	39	13	20	24	45	46	15	865	352	7	6

TABLE V.

Annual Return of Sick in the Hospital of His Highness the Raja of Satara's 1st Regiment of Infantry with Golandauze attached, during the year 1847.

DISEASES.	ADMITTED.												Remained on the 31st Dec. 1847.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Fevers	14	4	11	15	12	30	14	15	9	11	9	14	159
{ Febris Intermittens Quot.....	..	1	..	..	..	4	1	1	1	..	1	..	8
" " Remittens	1	..	2	..	1	..	1	1	1	..	..	..	5
Catarrhus	1	..	1	..	..	..	..	1	..	..	..	..	4
Diseases of the lungs.	1	..	..	..	..	..	..	..	..	..	..	1	5
Pleuritis .....	..	..	..	..	..	..	..	..	..	2	..	..	1
Asthma	2	4	2	2	3	..	2	..	..	..	..	..	15
Diseases of the sto-	1	2	1	1	3	1	..	2	..	2	1	..	7
mach and bowels....	..	..	1	2	..	2	..	..	..	1	..	..	13
Dysentery .....	..	..	1	..	..	1	..	1	1	..	..	..	4
Dyspepsia .....	..	..	1	1	..	2	..	1	1	..	..	..	6
Diseases of the Brain.	3	..	1	2	..	1	1	1	1	..	2	..	17
Cephalalgia	1	..	1	1	..	2	1	1	1	1	..	..	7
Rheumatic affections.	1	..	1	2	1	1	1	1	1	..	..	..	3
Rheumatism .....	..	..	1	1	4	1	..	..	..	..	..	..	7
Lumbago .....	..	..	1	..	1	1	..	..	..	..	..	..	3
Odontalgia .....	..	..	1	..	1	1	..	..	..	..	..	..	3
Veneral affections &	..	..	..	..	..	1	1	..	..	1	..	1	2
Diseases of the gen-	..	..	1	1	..	..	..	1	..	..	..	..	2
ital organs .....	..	..	1	1	1	..	..	1	..	..	..	..	4
Syphilis, Primary .....	..	..	..	..	..	..	..	..	..	..	..	..	2
" Consecutiva .....	..	..	..	..	..	..	..	..	..	..	..	..	2
Bubo .....	..	..	1	1	1	..	..	..	..	..	..	..	3
Gonorrhoea .....	..	..	1	1	..	..	..	..	..	..	..	..	2
Orchitis	2	3	4	3	3	2	2	1	2	3	3	1	28
Phlegmon et Abscess	5	..	6	3	6	5	4	..	3	..	2	5	36
Abscess and ulcers ...	..	..	..	..	..	..	..	..	..	..	..	..	6
Furunculus .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Luxatio	5	2	..	..	..	1	1	1	1	..	2	5	17
Contusio .....	..	1	..	..	..	1	1	..	..	..	1	1	4
Vulnus .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Wounds and Injuries.	..	..	..	..	..	..	..	..	..	..	..	..	1
Fractura .....	..	..	..	..	..	..	..	..	..	..	1	..	1
Diseases of the skin..	2	2	2	..	1	..	1	1	..	3	3	..	15
Scabies .....	..	..	..	..	1	3	..	1	..	..	..	..	5
Diseases of the eye....	1	1	1	1	1	..	1	2	1	2	..	..	9
Ophthalmia .....	..	..	6	9	6	7	3	5	1	1	..	3	1
Debility .....	..	5	..	..	1	..	..	..	1	..	..	..	45
Other Diseases. ....	..	..	1	..	..	..	..	..	..	..	..	..	1
Dysuria .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Dracunculus .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Otitis .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Tremors .....	..	..	..	..	..	..	..	..	..	..	..	..	1
Total.....	37	25	43	42	45	61	36	53	26	27	25	33	439
	6												16
													1
													422
													8

Strength of the Regiment 714Ratio of Sickness to Strength.....61-20 per cent.
" " of Deaths to Strength.....0-14 "

ARTICLE VII.

On poisoning by the Indian species of Datura. By Herbert Giraud, M. D. Edin: *Professor of Chemistry and Materia Medica in the Grant Medical College, Bombay.*

Presented February, 1849.

The very numerous cases of poisoning by *Datura*, that have of late occurred in Bombay, have afforded opportunities for observing the action of a poison, of which but a scanty record is to be found in the standard works on *Materia Medica* and *Toxicology*.

Many species of the genus *Datura* are indigenous throughout India; and "*Datura alba*" (*D. metel.* Rox. *Flora.* i. p. 561.) and "*Datura fastuosa*" (Rox: *Flora* i. p. 561), are found growing in gardens, and amongst rubbish, about villages, all over the country; although the species, most familiar to Europeans,—the "*Datura stramonium*" of the P. L. is unknown here.

The intoxicating properties of these plants appear to have been known amongst eastern nations from time immemorial,* and they have long been employed in India, China† and the islands of the Eastern Archipelago to facilitate the commission of theft and other crimes; for which nefarious purposes the *Datura stramonium* appears, of late years, to have been in some few instances employed in France and Germany. Here the cases of poisoning by the species of *Datura* are so frequent that the natives usually recognize them by their characteristic symptoms. The motives that prompt the administration of the poison appear to be extremely various. Frequently a shopkeeper is brought under the influence of the drug that his articles of merchandise may be the more readily made off with; or children are lured with sweetmeats containing the powdered seeds, that their ornaments and jewels may be more easily removed—very commonly a fortunate

* The Botanical name of the Genus has been adopted from the Sanscrit Dhatoora.

† The Chinese employ the *Datura ferox*.

fukeer is made to yield up his pious wealth whilst steeped in the lethargic sleep the poison induces. Jealousy frequently appears to seek revenge in the use of *Datura*. During the past year eight persons,—a man, his wife, two children, and some friends, were brought to the Jamsetjee J. Hospital, all suffering from the effects of *Datura*, which it was supposed they took in a meal prepared by the man's other wife. In my own house, three horsekeepers were at one time drugged by *Datura*, which it was believed had been thrown into their meal by a fourth,—a man of a different caste, and at the time, on bad terms with the others. The fantastic antics that are exhibited under the action of *Datura* sometimes tempt to the use of it as a practical joke; an unfortunate old man becoming the butt of a waggish boy, and I am informed that the poison is not unfrequently sought to, as a means of foretelling events—a person, whilst under its influence, being supposed to be possessed of faculties resembling those of the Pythian Priestess of old, or of the modern professors of “clair-voyance”.

It is remarkable, that although administered under such different circumstances, and with such varied motives, it should so seldom prove fatal here that not a single case, in which the effects of *Datura* could be distinctly traced, has terminated fatally; and of fifty-one cases that were treated in the Jamsetjee Jeejeebhoy Hospital during the past year only four presented very alarming symptoms. It is difficult to determine whether these comparatively mild results arise from a careful proportioning of the poison, or whether our Indian indigenous species of *Datura* are possessed of less virulent properties than those of the *Datura stramonium*, of the fatal effects of which instances are not wanting—several being recorded by Gmellin—one by Dr. Young, in which a child was killed by a single fruit,—another by Dr. Droste, of Osnaburg, where a decoction of 125 seeds proved fatal, and the well-known case of Mr. Duffin's child, of two years old, that died from swallowing 100 of the seeds without chewing them.†

Notwithstanding the recent prevalence of *Datura*-poisoning, it has been only on the presumptive evidence of its characteristic symptoms that its action has been inferred. The poison is administered so stealthily, and the natives of this country are so backward in aiding the cause of justice, that it is next to impossible to obtain positive evidence of the administration of the poison, or to trace it to the culprit;

* I have never heard of its being used here to facilitate seduction, and of the following fifty-one cases only two were those of females.

† Christison on Poisons. 4th Edit. p. 344.

although, from their familiarity with its nature and with the modes of its administration it is evident that many of the lower orders of the people are acquainted with the adepts who employ it. These remarks, however, apply with equal truth to cases of poisoning by such substances as arsenic and corrosive sublimate, the presence of which may be determined by the surer methods of chemical analysis.

In the only case in which I have been able certainly to trace the poison to its source, a dog-boy gathered the seeds of *Datura alba* in a garden, and threw them in sport into a cook's rice; and this man suffered from the characteristic delirium for about twelve hours after taking his meal.

From the information I have been able to collect from natives, it would appear that the seeds are the parts of the plant usually administered. They are powdered and thrown into rice, bajree, and other grains; or mixed up with cakes and sweatmeats. Sometimes, however, an infusion or a decoction of the leaves is prepared and introduced into the vessels in which food is being cooked; but of the usual quantity of the seeds employed, or of the strength of the infusion and decoction I have no means of judging.

From the 1st January 1848 to the present date (20th January 1849), fifty-one cases of poisoning by *Datura* have been treated in the Jamssetjee Jeejeebhoy Hospital; the general character of their symptoms have closely resembled those induced by *Datura stramonium*, in several instances exhibiting the three distinct stages, 1st of primary delirium:—2nd of sopor or even coma—and 3rd of final delirium, which have been observed to mark the action of henbane, belladonna, and other solanaceous plants, as well as that of the stramonium. It is seldom however that patients are brought to hospital before the 2nd stage—(that of sopor) has commenced, and very frequently not until the 3rd stage that of secondary delirium has supervened; and in the great majority of cases, either from the small quantity of the poison, from the large amount of food ingested with it, or from peculiarity of constitution, one single stage of delirium is alone observed.

The following is the general course of those cases in which the full effects of the poison are manifested:—The patient in the primary stage of delirium is found in a state of extreme restlessness, usually attempting to wander about as if in search of something, but frequently from giddiness and extreme muscular weakness he is unable to walk or even to stand; he either vociferates loudly or is garrulous and talks incoherently;—sometimes he is mirthful and laughs wildly, or is sad and moans as if in great distress; most generally he is observed to be

very timid, and when most troublesome and unruly, can always be cowed by an angry word, frequently putting up his hands in a supplicating posture. When approached, he suddenly shrinks back, as if apprehensive of being struck, and frequently he moves about, as if to avoid spectra. But the most invariable accompaniment of this, and of the final stage of delirium and frequently also of that of sopor, is the incessant picking at real and imaginary objects. At one time the patient seizes hold of parts of his clothes or bedding, pulls at his fingers and toes, takes up dirt and stones from the ground, or as often catches at imaginary objects in the air, on his body, or on any thing near him;—very frequently he appears as if amusing himself by drawing out imaginary threads from the ends of his fingers; and occasionally his antics are so varied and ridiculous, that I have seen his near relatives, although apprehensive of danger, unable to restrain their laughter. Many of these singular movements appear to originate in a curiously impaired or disordered state of vision in which distant objects seem to the patient as if very close to him, and those that are near as if highly magnified; for, frequently after gazing for some time at a distant object, he will attempt to grasp it as if it were close at hand; and he starts back when approached, as if he thought the person approaching would the next moment touch him. This state of vision may in part depend upon the widely dilated pupil, which, as in poisoning by other solanaceous plants, is an invariable symptom in all cases, and is persistent through each stage, and even continues for some time after complete recovery. With the foregoing symptoms great diversity in the state of the circulation is met with in different individuals, and even, in the same individual, at different periods. In the greater number of cases the temperature of the surface and the strength of the pulse are natural:—although the rate of the latter is usually somewhat accelerated (90° or 100). In other instances the pulse is much quicker than natural (112 or 120), full, firm, or even sharp;—the temples throb—the respiration is hurried, and the surface of the body is hot. Whilst as a third and less frequent condition, the pulse is quick, small, and feeble, the respiration slow, and the surface cold.

The 2nd stage, that of sopor, is the state in which a great number of cases are first brought under notice. They are then found either in a state of profound sopor, or in one of excessive drowsiness, from which they may be partially and momentarily aroused to some degree of consciousness; there is low muttering delirium, tremors, subsultus tendinum, and most usually the characteristic catching at objects al-

though the patient's eyes may be closed at the time. In four cases only have I met with deep coma, utter insensibility and stertorous breathing, and in two of these there was a remarkable tympanitic state of the abdomen.

These all appeared to be in great danger ; but like the milder cases, ultimately recovered after passing through the final stage of delirium.

As great a diversity in the state of the circulation has been observed in this 2nd as in the preceding stage of the operation of the poison—the pulse being frequently quick, full, and firm, with throbbing temples, and heat of surface ; whilst, in other cases, a cold damp skin has accompanied a small feeble pulse, scarcely perceptible at the wrist ; and this without any corresponding difference in the nature of the other symptoms.

The 3rd stage of final delirium has not been observed to differ, in any respect, either in regard to the nature of the delirium or to the condition of the circulation, from the primary stage.

The most numerous cases are those in which neither sopor nor coma are observed, but only the symptoms common to both stages of delirium.

The following is a statement of the condition of the patients at the time of their admission into the Jamsetjee Jeejeebhoy Hospital.

In a state of excitement afterwards comatose	2
In a comatose state	2
In a state of sopor	13
In a delirious state without sopor or coma	29
Total.....	51

The patients on recovery usually state that they have little or no recollection of any thing that occurred subsequent to their last meal, which may be supposed to have contained the poison ; so quickly does it appear to take effect. In one instance, however, I ascertained that a coachman drove his horses very steadily two hours after taking a meal which had been drugged ; but at the expiration of the third hour active delirium came on, and continued for about eight hours. It would be interesting to discover the general duration of each of the stages above indicated, but this is rendered extremely difficult from the varied periods that elapse before the patients come under treatment ; and the final stage of delirium is that only in which I have been able to arrive at even an approximate conclusion on this point. When the patient revives from the state of sopor, he recovers through that of final delirium usually in from six to ten hours ; and this appears to be the general duration of the delirium of those milder cases in which

neither coma nor sopor occur; doubtless the action of the poison is prolonged in some cases by the quantity of food ingested with it.

The treatment of these cases of poisoning by *Datura* must of course be guided both by the nature of the general symptoms, and by the particular state of circulation, which as before mentioned may be very varied under the same train of general symptoms. If the patient be seen soon after the poison has been taken, a promptly acting emetic, as of sulphate zinc, may be administered; and where sopor with cold clammy skin and feeble pulse has supervened, an emetic of Ipecacuan and sesquicarbonate of Ammonia seldom fails thoroughly to evacuate the stomach. In the stage of coma or even of sopor attended with heat of skin, throbbing temples, and full firm pulse, emetics, I think, should not be employed; both because their operation might favour cerebral congestion, and because when the case has advanced to this stage, the poison has probably left the stomach. In the stages of delirium where this is of an active kind and attended with much excitement of the circulation, great relief is usually obtained by the application of a few leeches (1 to 2 dozen) to the temples; the exhibition of the cold affusion once or twice, and the use of small doses of tartar emetic and opium. This combination, in doses of from half a grain to a grain of tartar emetic with 20 or 30 minimus of laudanum, repeated every 2 or 3 hours, generally proves as efficacious as in the analagous state of excitement that occurs in delirium tremens. On the other hand, when either the delirium or the sopor is accompanied by coldness of the surface of the body and a small feeble pulse, the use of the stimulants, as ammonia and ether, will be indicated. As it probably occurs in many cases that the action of the poison is prolonged by its being taken with large quantities of food and thus being only gradually absorbed in its passage through the intestinal canal, the early administration of an aperient, as castor oil, is obviously advisable.

Of the cause that has produced so sudden and remarkable an increase in the use of this poison, it is difficult to form any conjecture. Viewing the most prevalent motive to *Datura*-poisoning, it would seem as if some regularly organized band of thieves had, within the last year, invaded our island. From 1837 and 1838, when a few cases of poisoning supposed to be from *Datura*, were noticed by Drs. Bell and McLennan in the annual reports of the Native General Hospital, up to 1848 only from 6 to 10 such cases have been annually recorded; but during the past year, fifty one cases have come under hospital treatment.

APPENDIX.

APPENDIX.

No. 1.

Removal of a large Tumor from the Mouth. By W. L. Cameron, Esq.

Presented by the Medical Board.

Case—On the 10th of November 1848, a woman was brought to me from a village called Jeyoul, about 9 kos from Deesa, having a large tumor on the right side of her face, which entirely filled the cheek on that side, swelling it out to an enormous size, and protruding through the mouth in front. Her husband who accompanied her gave me the following history of her case.

History.—He said that when she was a child, about 7 years of age, she lost a couple of the molar teeth of the upper jaw on the right side—and that their situation became occupied by a small fleshy substance, which gradually increased in size until it protruded beyond the adjoining teeth. By the advice of some of her friends, a horse hair ligature was applied around the tumor, by which means a small portion of its extremity was removed. The tumor still continuing to increase, another ligature of a similar description was applied with the same result. After a lapse of a year the same measure was again had recourse to, but with a better result, inasmuch as the whole or a great part of the tumour was detached by the ligature. Notwithstanding this, it however again made its appearance, and continued gradually to increase until it assumed the appearance shewn in sketches No. 1 and 2.*

Case. On making an examination I found the tumor to be of a very hard and firm nature; its appearance, where seen protruding through the mouth, was red and flesh like, which coupled with other characteristic symptoms caused Mr. Paton of the Bengal Medical Establishment and myself to believe it to be of a sarcomatous nature. Its dimensions were as follows : Upwards it extended as high as the infra-orbital process—Posteriorly as far as the ramus of the inferior maxilla—Inferiorly it extended below the lower border of that bone—and Anteriorly as I have before said it protruded through the mouth, which was completely filled by it, and kept extended in consequence the lips being at their full stretch.

* *Note*.—I am indebted to Surgeon Thom H. M. 86th Royal Regiment for these faithful sketches.—*Note by the Secretary*. It has not been found practicable to introduce these sketches.

The tumor though very firm, as I have already remarked, was not quite immovable, and clearly had no attachment to the Inferior Maxilla, its connexions being as well as we could judge, to the superior bone of that name, at, or about the antrum; but as the cheek was drawn so very tight by the pressure of the tumor, that the finger could not be inserted between them, we could not form any very accurate idea of its attachments. I found, however, by introducing my finger into the mouth itself, which with some difficulty was accomplished, and thereby examining the palate, that it was not engaged in the disease. Having had the benefit of a consultation with Surgeon Thom, and Assistant Surgeon Paton, who agreed with me as to the feasibility of an operation, and as the poor creature was in a most lamentable state, food having to be introduced into her mouth through a small reed—not being able to articulate, and being constantly annoyed by the discharge of foetid matter from the tumor, caused probably by its pressure upon the teeth—besides from the lips being apart, there was a continual flow of saliva—all these added to the great inconvenience caused by the weight and size of the tumor, rendered her life a burden to her; and being willing to submit to an operation it was determined upon.

Operation.—On the 17th Instant in the presence of, and assisted by, Surgeon Thom, and Asst. Surgeon Paton, the woman having been placed upon the operating table, the light thrown full upon the face, and a director having been introduced from the angle of the mouth between the cheek and the tumor, towards the posterior portion of the latter, I made an incision with a sharp pointed bistoury along the director, dividing the cheek as far back as the anterior edge of the Parotid gland—on separating the flaps of the wound the tumor became fully exposed; inserting my fingers around and between it and the bone, its attachments were found to be of less extent than we had supposed them to be. Mr. Thom supporting the superior flap, and Mr. Paton drawing the tumor outwards and downwards, so as to give me as much room as possible, I introduced a double edged scalpel underneath it, and close to the bone; then, with a few cautious sweeps of the knife, I separated the tumor from its attachments, which we now found had been connecting it to the alveolar process of the superior maxilla; any small portions of the tumor which remained adherent to the bone were now carefully dissected off, and a few teeth, which were found loose and distorted, were extracted; the whole of the tumor, as well as its roots, were thus removed, as far as could be effected by the knife, to the satisfaction of those present. But in order to prevent, any probability of its return, I deemed it advisable to apply the actual cautery freely over the entire surface of the bone that had been connected with the disease. This having been done, a pledget of sponge was applied to the cauterized part, the lips of the wound in the cheek were brought together by stitches, a small piece of wet lint was placed above them, and the dressing completed by a bandage applied lightly over the whole. The quantity of blood that was lost during the operation was but little, two or three small arteries, which did not require to be taken up, only having been divided; she was a little exhausted by the severity of the operation; a little wine and water was therefore administered, after which she was removed.

17th November. Vespere.—On visiting her in the evening I found that there had been little or no bleeding since the operation; complains of having some pain in the jaw, but not severe; slight swelling; slept a little in the afternoon. Pulse good.

18th Do.—Slept pretty well; no bleeding; swelling slightly increased, pain much as yesterday evening. The wound is apparently doing well, so I have not removed the dressing; bowels not opened since the operation.

R. Infusion Sennæ ℥ii.

Magnes: Sulph. ℥iii. m. STATIM.

Vespere.—Bowels opened once by the medicine ; feels less pain in the wound ; swelling much the same ; the sponge, which was applied to the jaw, was removed this morning, the saliva was slightly tinged with blood for a couple of hours afterwards.

19th November.—Slept well ; feels less pain ; swelling has also subsided a little ; the compress and bandage were removed, and the edges of the wound found to be in apposition, and adhesion taking place ; bowels not opened since last report.

Wound dressed with straps of adhesive plaster, compress of lint, and lightly bandaged.

20th Do. *Vespere*.—Case doing well.

Dressings removed, the strips of plaster having slipped a little from their position ; the swelling much as yesterday ; adhesive inflammation going on ; slight discharge from the wound ; no pain ; bowels natural ; pulse good.

Adhesive plaster again applied together with simple dressings, the whole supported by a light bandage.

21st Do.—Slept well ; pain and soreness diminishing ; bowels opened once since last report ; skin and pulse natural ; the dressings appear to be in good position, and are therefore not touched.

22nd Do.—Slept well ; bowels open ; dressing removed, and the wound appears to be doing well ; dressed in the same manner as before ; going on well in all respects ; bowels open.

23rd Do.—From this period, continued to do well until the 30th December when she was discharged well, the wound having quite healed, and no appearance whatever of any recurrence of the disease.

Camp Deesa, January 1849.

No. 2.

Return of Patients in the Bombay Lunatic Asylum, with Remarks. By W. ARBUCKLE M. D.

Presented, December 1848.

No. 1.

Annual Return of Patients in the Bombay Lunatic Asylum, exhibiting the nature of their diseases &c. from 1st April 1848 to 31st March 1849.

	Remained 1st April 1848.	Admitted.	Total.	Discharged.			Died.	Absconded.	Remaining 31st March 1849.
				Cured.	Delivered to friends.	Embarked for Europe.			
Chronic Insanity.....	6	15	21	..	5	..	..	..	16
Epilepsia and Imbecility....	1	..	1	..	..	..	..	..	1
" " Mania.....	1	..	1	..	..	..	..	..	1
Fatuity Senile.....	1	2	3	..	1	..	1	..	1
Idiocy.....	17	..	17	..	2	..	1	..	14
Imbecility.....	29	15	44	3	6	..	3	..	32
Mania.....	10	52	62	30	..	..	5	1	26
Melancholia.....	8	20	28	5	2	2	2	1	16
Paralysis General & Idiocy..	2	..	2	..	..	..	1	..	1
Puerperal Mania.....	1	2	3	1	1	..	..	..	1
Total....	76	106	182	39	17	2	13	2	109

No. 4.

Table showing the occupation of inmates of the Bombay Lunatic Asylum for the year ending 31st March 1849.

	Europeans.		Natives.		Total.
	Males.	Females.	Males.	Females.	
Armourers	1	..	1
Barbers	1	..	1
Blacksmiths	1	..	1
Brokers	1	..	1
Carpenters	2	..	2	..	4
Carters	1	..	1
Clerks	5	..	5
Commissioned Officers	1	..	1	..	2
Cooks	3	..	3
Fishermen	2	..	2
Wives	1	1
Goldsmiths	1	..	1
Wives	1	1
Horsekeepers	3	..	3
Wives	2	2
Household Servants	9	1	10
Labourers	7	..	7
Medical Apprentices	1	..	1
Mendicants	24	5	29
Milkmen	3	..	3
Milkwomen	1	1
Musicians Wives	1	1
Peons	1	..	1
Rutlers	1	..	1	..	2
Ryot's	23	..	23
Wives	4	4
Schoolmasters	2	..	2
Seamen	3	..	6	..	9
Soldiers and Sepahees	7	..	25	..	32
Wives	4	..	3	7
Shoemaker's Wives	1	1
Shopkeepers and Merchants	11	..	11
Wives	2	2
Sailors	1	..	1
Weavers	1	..	1
Total....	14	4	142	22	182

GENERAL REMARKS.—I have appended the Table No. 1 in order to exhibit the various forms of Disease admitted into the Asylum for the past year, and it will be seen from the same that, of the 39 cases cured, 30 of those were (as may be expected) cases of recent Mania, which had been brought immediately under the influence of medical treatment; and I have had the satisfaction of seeing some of those patients return to the Asylum to express their gratitude. The 17 cases marked “Delivered to friends,” were patients so improved, or perfectly harmless that, at the earnest solicitation of their relations, they were handed over to them, whenever the change from the Asylum was likely to be attended with advantage. The 13 casualties were as follows: 5 from Scorbutic Diarrhœa; 4 Atrophy and old age; 1 Dysentery; 1 Remittent Fever; 1 Disease of heart, and 1 Disease of the colon. The most fatal disease, it will be seen, is Scurvy, and with the damp situation of the Asylum during the rains, and its inadequate accommodation for the increasing num-

ber of patients, the liability to this disease is, I fear, not likely to be removed without the aid of a new Asylum.

In the treatment pursued, kindness and consideration to every patient in the Asylum has been the invariable rule, whilst much attention has been given to the advantages arising from the daily salt water bath outside the Asylum, perfect cleanliness and ventilation, regular hours, and carefully regulated food ; as well as separating the noisy and refractory from the tranquil, and occupying the minds of the patients as much as possible with healthy amusements, such as for the Natives, Garden employment, making Mats, &c. whilst the Europeans had their Bagatelle Table, Back Gammon Board, Card Table and Reading Room* to amuse and attract their attention. Restraint has never once been had recourse to ; tranquillity being always produced in acute cases of Mania, by separation and isolation, with mild aperients, cold affusion, and the occasional use of the acetate or muriate of Morphia as recommended by Dr. Seymour. Such mild remedies are much more efficacious than the drastic purgatives, blisters, &c. which it is to be feared, too often interfere with the natural tendency which maniacal excitement has to subside in the course of a month, as mentioned by Esquirol.

The Tabular Statement exhibiting the admissions, discharges, deaths, &c. since 1842, shews, the great increase of patients in the Asylum ; and the necessity for providing additional accommodation for the same, is now so great, that the subject can no longer escape the serious attention of Government. The Asylum at Colaba, I may mention, is constructed so as to accommodate about 50 or 60 patients, and so arranged that the one half of its accommodation (the Eastern Wing) is allotted for the reception of Native male patients, whilst the western wing is set apart for European and female patients. The admissions of the former class, however, bear such a very large proportion over the latter, that out of the 109 patients now in the Asylum there are 81 native male patients, and it is quite impossible to locate *such a number* with safety in apartments only suited for the reception of thirty.

In 1846, my predecessor Dr. Grierson brought this subject to the notice of Government, and as a remedy, suggested that a new range of buildings should be erected in the corner of the garden for the accommodation of the European and female patients, as by this plan, a better arrangement could be made for the disposition of the European patients, whilst the western as well as the eastern wing of the Asylum would be given up for the additional accommodation required for the native male patients.

Government, however, could not accede to this proposition, but suggested that the rules and regulations regarding the admissions of patients into the Asylum should be more strictly enforced, and issued circulars accordingly to the several Collectors and Magistrates of the Presidency.

On the issue of such instructions, "alleged Lunatics" found in the streets of Bombay, and brought to the Asylum, were no longer admitted without a Medical Certificate attesting their Insanity, and the admissions were thereby greatly reduced as will be seen from the accompanying Table ; but it will also be observed that during the past year the admissions have again increased to 106, and these being now all cases of *Certified Insanity*, some further provision must be made for the accommodation and treatment of the Insane of Bombay.

With an Asylum objectionable as to construction and situation, it is difficult to suggest, what is best to be done in the way of improvement, and I therefore hesitate to encourage a much greater outlay of money in trying to make the present building at Colaba meet the desired end, as I am of opinion that the real interests of Government, and those of the community will be best consulted, by adopting the wiser plan of building a new Asylum, on

* The increase of patients renders it now necessary to give up this room to the female patients.

some dry, large, open, and elevated site in the vicinity of Bombay, possessing an abundant supply of water suitable for garden purposes,* and all the other essentials necessary for the improved moral treatment of Insanity, such as the separation of castes, various workshops, &c.

Such an Institution however, is not likely to be built immediately, and to relieve the Asylum from its present crowded state, I think that Idiots and harmless Imbeciles (who have no relations to look after them) should be removed to some more suitable building* not far distant from an Hospital, where their wants could be supplied, and their health attended to, by the medical man of the station; and I think the Magistrates of Bombay should also be informed that the Asylum was never meant for the reception of *such patients*, but only for those who were amenable to treatment, and for whom it would be dangerous to society to leave at large.

Cases of Insanity occurring in the Southern Maratha Country, where the Canarese language is spoken, should also, in my opinion, not be sent to Bombay for treatment, as their removal to a distant country where their language is neither spoken nor understood only tends to aggravate their maladies; and to make provision for such cases, a district Asylum should be built at Dharwar (or Belgaum) similar to what I recommended when stationed there as Civil Surgeon. Encouragement would then be given to the friends of Insane patients to bring them to an Asylum within their reach at the first onset of the disease, when treatment is so efficacious, and the villages would then be relieved from the many victims to Chronic Insanity, who go about disseminating all the evils of such an hereditary disease, and who are never once brought under the influence of Medical treatment, until they have committed some criminal offence, and are brought before the Civil Authorities to be consigned to an Asylum for the rest of their lives.

The same remarks may be applied to cases of Insanity in Scinde, and a district Lunatic Asylum should not, in my opinion, be lost sight of amongst the improvements introduced into that part of the Presidency.

No. 3.

A Case of Idiopathic Tetanus in which the inhalation of Sulphuric Ether was used. By C. MOREHEAD, M. D.

Presented, February 1849.

Gunga, a Hindoo Hammal, 24 years age, was admitted into the Jamsetjee Jeejeebhoy Hospital on the 20th August 1847, after having suffered with symptoms of Tetanus for four days. No injury had been received, but he had been a good deal exposed to wet. The spasms were frequent, and affected the muscles of the lower extremities, the trunk, the neck and jaws. His bowels had been confined for three days. 2 grains of Calomel, 2 of Extract of Hemp, and $\frac{1}{4}$ of a grain of Tartar Emetic were directed to be given every second hour; and at noon a drop of Croton oil, and to be repeated after three hours if necessary.

Four pills had been taken before the evening visit but the bowels had not been moved. $\frac{1}{2}$ a drop of Croton oil was directed to be given every 3rd hour, till the bowels were moved,

* For 3 months in the year, the water used in the Asylum is brought from the Esplanade (a distance of 3 miles).

* Might not the vacant Hospital at Dapoolce be well suited for such a purpose?

and the pills were continued with 3 grains of the Extract of Hemp. On the following morning (21st) it was reported that the bowels had not been opened—that six pills had been taken without alteration of the spasms which continued frequent. The inhalation of Sulphuric Ether was now commenced, and between 9 a. m. of the 21st and 7 a. m. of the 22nd it was had recourse to 9 times, at intervals of about two hours during the day, but with an interval from 10 p. m. to 5 a. m. during the night. The following were the effects of the inhalations noted. “The pulse at first increases in frequency, then sinks to 60 and becomes soft. The breathing becomes more regular. The spasms relax. The skin becomes covered with perspiration; sopor takes place for a few minutes. The relief is complete and continues with an occasional slight spasm for about an hour after the inhalation. Then the spasms recur with the same severity as before.”

The Croton oil had been repeated 3 times and the bowels had been freely moved. The Ether was again used four times on the 22nd with the same effect, and was suspended after the evening visit because the supply had become exhausted. A Pill consisting of Muriate of Morphia gr. iss. Calomel gr. ii. Tart: Antim: gr. $\frac{1}{4}$ every 3rd hour was substituted.

By the morning of the 23rd 4 pills had been taken, and it was reported that the night had been passed quietly. The spasms of the muscles of the extremities and trunk continued to recur frequently. There was some drowsiness with heat of skin, and the pulse numbered 116. The use of the Ether was directed to be resumed, and the pills were omitted. Before a fresh supply of Ether had been received, he was found at noon in a state of insensibility, with hurried moaning respiration, spasms occasionally urgent; skin very hot and dry. • P. 150, very feeble. At the evening visit there was less drowsiness and heat of skin, and the pulse had fallen to 112; spasms occasional, chiefly of the back but not so severe. He died early on the morning of the 24. The Ether was not used after the evening of the 22nd, and nothing was given on the 23rd but a dose of Croton oil.

No. 4.

Case of Traumatic Tetanus treated by the inhalation of Chloroform. By J. PEET, Esq.

Presented, February 1849.

Fatmah, woman of mussulman caste, age 25, was admitted into the Jamsetjee Jeejeebhoy Hospital on the afternoon of the 9th January, about 4 o'clock. The left fore-arm and lower part of the arm were in a state of sphacelus, the limb being destroyed in its whole thickness, and the bones in places exposed. A line of separation was forming about 2 inches above the condyles. It was stated that 13 days before admission, she slipped in walking and fell on her hand and fore-arm. The bones of the fore-arm are said to have been broken. Bandages and splints were applied by a native practitioner. After a few days the limb became much swollen, and very quickly ran into gangrene. Amputation by flaps was performed on admission, at the middle third of the arm; about 8 ounces of blood were lost; 4 ligatures were used, and the stump dressed at the time of the operation, sutures being employed. She passed a tolerably good night after the operation, but on the following morning, there was some heat of stump and a little febrile excitement, and these increased during the day, with swelling and redness of the skin towards the axilla. About 8 o'clock at night she complained of pain and difficulty in opening the mouth, and when asked, said she had felt stiffness since an early hour in the morning. At this time the abdominal muscles were rigid,

but there were no paroxysms of spasms. In the course of the night the rigidity of the muscles increased, and towards morning there were frequent distinct, but short paroxysms. At 8 o'clock on the morning of the 11th her state is thus noted—"Mouth nearly closed, can only be opened sufficiently wide to admit of the entrance of a quill; the attempt to open it occasions a paroxysm of spasms, chiefly of muscles of face and of back part of trunk. The outline of the muscles of the face is permanently more distinct than natural, and there is uninterrupted rigidity of those of the abdomen. Touching any part of the skin is followed by spasmodic contractions. Pulse frequent; skin above the natural heat; breathing easy." 30 minims of Chloroform were inhaled, and insensibility was quickly produced—all the muscles became relaxed and she remained for about 10 minutes as if in a quiet sleep, when she awoke with a start followed by a paroxysm of spasms. $\frac{1}{2}$ Half an hour after the first inhalation ($8\frac{1}{2}$) the same quantity of Chloroform was again inhaled, and at a quarter to 9 o'clock she was left to appearance in a quiet sleep. It was stated that she awoke soon afterwards, and that the spasms became frequent and severe. At 20 m. to 10 the Chloroform was repeated when her state was as follows: "Spasms frequent and excited by the slightest contact of the hand with the skin. Rigidity of the abdominal muscles is rather less than in the morning; bowels moved 3 times; mouth almost closed; pulse over 100; skin above the natural heat." At 11 o'clock. "The mouth more closed; skin more hot and pulse more frequent. The spasms recur in paroxysms of short duration, and chiefly affect the muscles of back. They are excited by touching the skin, and particularly that of the stump, or by trying to open the mouth; but it is noticed they occasionally occur, and more frequently than formerly, without any irritation." The Chloroform was again inhaled, and with the same marked relief. It was repeated at $1\frac{1}{2}$ at 4 and $5\frac{1}{2}$ p. m. and at the latter hour the following note was taken: "Is worse than in the morning. Paroxysms of spasms more frequent and more severe; mouth quite closed; pulse very frequent. From this time until 11 o'clock the Chloroform was inhaled every hour with perfect relief for a few minutes, and with considerable mitigation of suffering for about half an hour each time; after 11 o'clock the Chloroform was not again inhaled, until $7\frac{1}{2}$ past the next morning when her state is thus noted: "Had a very bad night; no sleep; spasms are now almost constant; opisthotonos at each paroxysm. Pulse about 120; skin covered with moisture. Begs for the Chloroform." The Chloroform was ordered to be inhaled every half hour. At half past eight the breathing was much affected; "pulse scarcely countable from its rapidity. The relief from the chloroform only lasts for the time she is completely under its influence, viz. whilst she is insensible." At 9 o'clock, notice was brought that a very violent paroxysm of spasms had come on; on visiting her she was found dying, and in a few minutes had ceased to breathe.

No. 5.

Note on the Epidemic of Measles which appeared in the Central Schools, Byculla, during the winter months of 1846-1847. By W. C. COLES, M. D.

Presented, October 1848.

In the second Volume of the Transactions of the Medical and Physical Society, Dr. Morehead has put on record an account of an epidemic of Measles which visited the Central Schools at Byculla during the months of December 1836, January, February, and

March 1839, and as another, and a very similar epidemic occurred whilst I held Medical charge of the Schools, during the months of December 1846, January, February, and March 1847, I think it may perhaps be useful and interesting to give a short account of this visitation, with the view of furnishing some additional data which may be available for future reference.

In the interval of eight years between the first and second epidemic, a solitary case of Measles seems only to have occurred, and this is not unworthy of remark when the large number of children in the Schools is taken into consideration, and who, it should be recollected, are year by year subject to the same influences, and liable to the same exciting causes, as produced the two attacks above referred to. This single instance of the disease occurred on the 14th January 1840, in a girl who was sent on the following day to the European General Hospital, and her removal seemed to have prevented the extension of the disease to any of the other children. Upon the breaking out of the epidemic of 1838-1839, and again of that of 1846-1847, a similar precautionary measure was adopted, but it was unattended with the same beneficial effects, for in neither instance was the spread of the disease thereby checked.

During the last fourteen years, there have been three visitations of Measles of an epidemic character in the schools, viz. in 1832-1838, and 1846, and this periodical recurrence is interesting as confirmatory to some extent, of the accuracy of the observation of the older writers, who believed that the interval between each epidemic is a period of seven years.

The introduction of Measles into the Schools on the present occasion, appears to have been effected by the admission of a child aged $2\frac{1}{2}$ years, who had recently arrived from Kurrachee, but who was sent, as soon as the disease was recognized, to the European General Hospital. This child was an inmate of the Infant's School, which is in that portion of the building occupied by the girls, and on this account the disease might have been expected to shew itself first amongst them, and this accordingly happened. On the 21st December, a girl without any initiatory fever was observed to be affected with an eruption resembling that of Measles, and she was sent immediately to the European General Hospital.

On the 23rd, another girl fell sick with the disease, and before the end of December there were two other cases.

The introduction of the epidemic being now manifest, the utility of sending any more children to the Hospital was not apparent, and consequently no others were sent. From this time the progress of the disease in the schools was as follows:—

Girls' School.—On the 1st January 1847, there were four cases, on the 5th two were attacked, on the 6th five, on the 7th two, on the 9th one, on the 13th eight, on the 14th three, on the 15th four, on the 16th five, on the 17th three, on the 18th two, on the 19th three, on the 24th one, on the 26th one, on the 28th two, on the 29th two, and on the 30th one. In February, one on the 9th, two on the 10th, one on the 17th, one on the 19th, and one on the 28th. In March only one case, on the 10th of that month.

Boys' School.—Here the disease did not shew itself until the 16th January, at which time there had been 36 cases amongst the girls. On the 19th of January there were two cases, on the 24th one was admitted, on the 25th one, on the 26th four, on the 27th one, on the 28th one, on the 29th two, on the 30th four, and on the 31st two; on the 1st February two, on the 2nd two, on the 3rd five, on the 4th six, on the 5th seven, on the 6th ten, on the 7th eight, on the 8th six, on the 9th three, on the 10th one, on the 11th two, on the 12th three, on the 13th two, on the 14th two, on the 15th one. There was now no case for 10 days, after which there was one on the 25th, another on the 28th, and the last one on the 4th of March.

The following is a statement of the monthly admissions, and deaths from the disease.

ADMISSIONS.				DEATHS.		
	Girls.	Boys.	Total.	Girls.	Boys.	Total.
December.....	4	1	5	..	..	..
January.....	49	20	69	1	..	1
February.....	6	62	68	1	3	4
March.....	1	1	2	..	..	..
Total....	60	84	144	2	8	5

It will be seen from this table that the total number of cases treated was 144, and the deaths 5, viz. 3 boys and 2 girls. The first fatal case was in a girl, admitted on the 6th of January and died on the 16th, a good instance of the rapidity of the disease.

The next fatal case was one of a boy admitted on the 26th January, and died on the 2nd February; another occurred on the 4th February in a delicate little girl admitted on the 15th January, and the two remaining ones, were in boys on the 17th and 21st of February, who were admitted on the 4th and 5th of that month respectively.

Thus there were 144 cases treated, and 5 deaths out of a strength of 355 children; and this is a smaller number of fatal cases in proportion to those attacked than occurred in the epidemic of 1838-1839, when, according to the before mentioned report, the number of cases treated was 91, and the deaths 5, viz. 4 girls and 1 boy out of a strength of 235 children.

The present attack was obviously not of so severe and immediately fatal a character as the former one, although the number of admissions in proportion to the strength of the schools was very nearly the same in each instance, viz. about 4 per cent.

But the sequelæ were much more severe, particularly ophthalmia which afterwards prevailed extensively through the schools, and required months to elapse before it was entirely eradicated.

The seeds of disease laid by this epidemic shewed themselves for a long time afterwards in the mortality that resulted from bronchial, pulmonic and dropsical affections—the general impairment of health and the great impoverishment of the system, but too often had a fatal termination in cachexia. There was nothing in the nature of the particular symptoms in any case calling for special remark. The disease was very much the same as it has always been observed in this country, and I have nothing new to add.

Initiatory Fever about as often escaped observation as it was seen; tender eyes prevailed more among the boys than the girls, and the former suffered more in proportion from the subsequent ophthalmia. The faintness of the eruption did not at all warrant the opinion that unfavorable symptoms were more likely to come on, but the decline of the eruption was the usual period when they appeared, and they generally consisted of some inflammatory affection of the lining membrane of the air passages and lungs, ran rapidly through their course, and were often accompanied with gastro-enteric irritation.

The treatment was usually by emetics of Ipecacuanha in the first instance, followed by a simple laxative, and Salines; Leeches, Tartar Emetic and Calomel were employed in those cases of Pneumonia which occurred, but with different results, whilst in convalescence, much dependence was placed in substituting a better diet, and the exhibition of tonics.

Regarding the sequelæ of Ophthalmia, I would remark that the cases I had an opportunity of seeing were for the most part severe and rapid ones, hastening on in the more

scrofulous children to ulceration of the cornea, and unless checked at a very early period, they usually terminated in Staphyloma.

The admissions from Ophthalmia from the 10th March (the date of the last case of Measles) were very frequent and no instance occurred to my knowledge of any child who had been attacked with Measles escaping from the morbillous form of this affection.

Before the epidemic of Measles appeared in the schools, there were three cases of Hooping cough, and after its cessation several cases occurred, and it was extremely interesting to watch the progress of both diseases at the same time in the same individual.

No. 6.

Case of secondary purulent deposit in the Lungs, following a contused wound of the scalp.
By J. PEET, Esq.

Presented January, 1849.

Nestan Baptiste, a spare but healthy looking Portuguese Christian, aged 36, was brought into the Jamsetjee Jeejeebhoy Hospital, by the Police on the evening of the 7th March 1848. It was stated that he had been engaged in an affray, in which sticks were used; and that he had been wounded on the head, and bruized about the chest. On examination two small wounds were found over the left parietal bone, and another somewhat greater in extent, both as regards length and depth, a little behind the right parietal eminence. None of the wounds were so deep as to expose the bone, but the one last noticed reached through the Aponeurosis of the Occipito Frontalis muscle. The chest was carefully examined, but no marks of contusion were visible. Two days after admission, viz. on the morning of the 9th March, he complained of cough, and said he had expectorated some blood in the night, but which was not kept for inspection, nor seen by any one but himself. The chest was again examined with care, but nothing abnormal detected. At this time the wounds were looking well;—there was neither swelling, nor heat of scalp;—the skin was cool, and he had scarcely any pain. From this date, until the end of the month, a period of 22 days, he went on favorably—the two smaller wounds entirely, and the *third* in greater part, healed—there had been no return of the cough, and his health seemed quite good. On the morning of the 1st April, he complained of soreness of the wound over the right parietal bone—a little puffiness of the surrounding scalp was noticed, and there was some thin, unhealthy discharge. On the 4th there is the following note in the diary of his case—“Discharge increased—complains of pain of head generally—sluggish in manner, but sensible—pupils somewhat contracted—skin hot and dryish—pulse frequent and easily compressible; tongue furred—bowels costive. A dose of Calomel and Jalap was ordered, and he afterwards took every third hour, Liquor Ammonia: Acet: with small quantities of Tartarized Antimony. A free incision was made through the Aponeurosis of the Occipito Frontalis. On the 5th there was no improvement—he had suffered a good deal from fever and head-ache during the night; and at 8 o'clock in the evening he had been suddenly seized with dyspnoea and cough, which lasted until 12 o'clock, and distressed him greatly”—At the time the note was written (the morning of the 5th) his skin was cool—and his pulse small and frequent—he was quite sensible, and his breathing was easy. The discharge from the wound was considerable—for some distance around it the scalp had a “boggy” feeling, and over a space about 1 inch in circumference, the bone was bare. Another free incision was made, a poultice applied, and two grains of Calomel, with small quantities of Dover’s powder given three times in the day—in the afternoon he had a severe febrile accession which continued throughout the night. On the following morning—the pulse was feeble—the breathing greatly hurried—and there was occasional short cough, with puriform expecto-

ration—the skin was coldish, and jaundiced, and there was considerable drowsiness. He gradually sunk during the day and night, and died at 7 o'clock on the following morning.

Section Cadaverius.—10 hours after death. Skin generally jaundiced—cicatrices of two small wounds of scalp over right parietal bone—over the left parietal bone a little behind the eminence, there is a wound about 1 inch in length—the edges are thick and discoloured, and there is some adherent dark coloured matter lying upon them. On removing the scalp,—the surface of the parietal bone, corresponding to the wound—and also, for a further space of two or three inches in circumference—was deprived of the Pericranium—the place of the latter investment being occupied by an adherent substance, apparently blood and lymph—the surface of the bone itself was carious. The head being opened, the inner surface of the bone, opposite the wound, was found to be rough, and without the glistening appearance of other parts of the skull—underneath this, the Dura Mater was covered with a thick layer of closely adherent lymph—on removing the latter Membrane, a considerable quantity of fluid, of a yellow tinge, was seen in the Sac of the Arachnoid—and there was thickening of this membrane under the diseased part of the Dura Mater. At the base of the brain upon the under surface of the left middle lobe, there was a spot of a florid red colour—the brain was otherwise healthy, and there was no effusion into the ventricles.

Chest.—The Sac of the left Pleura contained about 12oz. of Serumtinged of a yellowish colour—the surface of both layers of the membrane, studded with numerous florid red patches, and covered with flakes of Lymph. The posterior and lower part of the Lung, was occupied by several small, distinctly circumscribed collections of Pus, varying from the size of a walnut to that of a pea. Between these collections the Lung was partially hepatized. The Anterior and upper parts of the Lung, were tolerably healthy—there were spots of injection on the right Pleura, and a few flakes of lymph within its Sac—the lung healthy.

No. 7.

Annual Report of the Hospital of the 4th Regiment N. I. Rifle Corps for the year of 1847.
By D. RITCHIE, Esq., Surgeon.

Presented by the Medical Board.

STATIONED AT KURRACHEE.		31st December 1847
Strength of the Regiment.....	1,041	
Included in the Returns.....	918	
Absent on command beyond the Division or on leave.....	123	
Total....	1,041	
<i>No of Sick.</i>		
Remained 31st December 1846.....	68	
Admitted in 1847.....	929	
Discharged	966	
Died in Hospital.....	7	
Remaining 31st December 1847.....	24	
Average daily number of sick for the year 1847.....	40 $\frac{108}{365}$	
Average number of convalescents.....	"	
Died without receiving medical treatment.....	"	
<i>Changes since 31st December 1846.</i>		
Recruits Joined.....	56	
Discharged from the service on account of diseases.....	7	
Discharged from the service on account of other causes..	96	
Invalided	15	
Pensioned.....	31	

In the annual Medical Report of the 4th Regiment N. I. (Rifles) for 1846, it was stated that ulcers, chiefly of an eethymatous character, were much on the increase towards the close of that year. By the middle of January 1847 the two companies of sepoy, which had been on out post at Shahpoor for three months, joined the Head-quarters preparatory to the removal of the Corps to its station Kurrachee. 60 men of these two companies were affected with ulcers, and many others although not on the sick list, were slightly scorbutic.

The Regiment marched on the 15th January for Sukkur, and after a halt of 18 days, proceeded down the Indus in Steamers to Tatta, and from thence marched to Kurrachee, where it arrived on the 16th February, with a sick list amounting to 87 men arising from the abovementioned causes. The health of the sepoy became so rapidly benefitted by this change to a sea coast climate, that by the month of April the average number of sick was reduced from 63 to 29; however on the 17th May, scurvy made its appearance among the men, and during the following months 64 cases in all were treated, of which 6 died. The last case admitted into Hospital was on the 16th August, after which it suddenly ceased, and all then under treatment speedily recovered. Ulcers kept pace exactly with the scorbutic affections, in their prevalence and decline, and so easily excited were they at one time, among the patients in hospital, that leechbites, blisters, simple puncture with the lancet and indeed any breach of surface genenerally became open sores.

The experience of the past year seems to shew that the prevalence of scurvy depended on atmospheric vicissitudes, from the fact of its having commenced and terminated with the strong monsoon winds which blow during that season. These winds, although they do not bring rain, are very damp. It may also in some measure be attributable to bad diet, for it was most general, and indeed all the fatal cases occurred among sepoy of the lower Hindoo castes, men who, not being over fastidious as to the quality of their food, partake freely of the cheap stale fish, so common in the camp bazars.

Vegetables, the better sorts of grain, and animal food, are more expensive here than at other stations of the Bombay army, especially during those months, which no doubt induces this class to live on an inferior diet. No case of scurvy occurred among the Jews or Mussulmans of the corps, numbering about 80 persons. Several cases appeared to be brought on by the confinement of the men to Hospital for other diseases, and very probably from the want of accommodation for the sick for cooking, which was complained of at the time, and was not supplied, until the disease had abated.

Of the 64 treated for scurvy, about one third had served at Shapoor in Upper Scinde, and although the affection there was very mild, it was pretty general, but the duty being light none entered the hospital for treatment. The causes of the disease at Kurrachee, here adduced, cannot apply to Upper Scinde, for there it, as well as ulcers, occur together in the cold season, when the dry cold northerly winds prevail. It has generally been said to arise there, from inferior diet, particularly the want of vegetables, but I am not aware that vegetables are more scarce at Shapoor in the winter, than at any other season. Vegetables are equally scarce throughout all seasons at Shapoor.

The treatment adopted was that which is usually pursued viz. warm clothing, generous diet, as far as practicable with natives, plenty of vegetables, sherbet ad-libitum, arrack to those accustomed to it, (for not a few were dram drinkers) quinine, bark, acids, salt, and limejuice, &c. These remedies proved very unsatisfactory, excepting in the mildest cases until the month of August, when the disease was on the decline. The Iodide of potassium was evidently of service in reducing the hard swellings of the limbs after the other appearances of scurvy had ceased.

Although the admissions during the past year have been fewer than in preceding ones, it must be expected that the daily average number in Hospital, or in other words the period

each patient is under treatment will exceed that of former years in consequence of the Chronic character of the diseases treated, viz. Scorbutus and its Sequelæ—Chronic Rheumatism, Chronic Ulcers, whether ecchymatous or arising from phlegmons contusions, or wounds.

The fevers admitted have all been of a simple uncomplicated kind. No deaths happened under this head.

Of the deaths, 6 occurred from scurvy, diarrhoea, slight fever, or ascites supervening and terminating suddenly with faintness or slight dyspnœa—the 7th death is under the head of ulcers,—this man had an indolent sore on the left side of his chest, he was but very slightly scorbutic and otherwise a stout man; it seemed probable that in the night he had applied a paste of the “marking nut” to the ulcer. Next morning it was exceedingly irritable and painful, and without other symptoms than frequent faintness, and a sinking pulse, he died in 12 hours; from the want of accommodation in the Hospital at that time I could not hold a post mortem examination of the body.

Among the European officers two bad cases of remittent and intermittent fever occurred, and one of these proceeded to Bombay for change of climate, another has proceeded to Europe on account of Hepatitis.

On our arrival at this station the Hospital was found in a very indifferent state for the reception of patients. It consisted of a long and rather narrow building capable of holding about 50 beds; but beyond this there was no accommodation for the sick or the Hospital Establishment. Since that period a veranda has been added to the east and west fronts, and a surgery—also cooking and bathing rooms. A Privy together with quarters for the Assistants has been built so that the hospital is now in as commodious a condition as the original building will permit of, with the exception of having no glass windows. These are very necessary for the comfort and health of the sick in this Cantonment, by excluding the damp winds which blow strongly in the monsoon weather, and the cold dry northerly winds with dust which prevail during the present months.

No. 8.

“*Extract from the Report of the H. C. S. Nitocris in the River Euphrates.*” By Assistant Surgeon HYSLOP.

Presented by the Medical Board.

There is a disease endemic in this country, which I believe is met with no where else. I allude to the Bussorah Boil, called by the Arabs *Nishanal Tuner* or Date mark. As yet only one European on board has suffered from this disease, but two of our Indian servants have ugly scars on their hands and feet. I have never met with a written account of this intractable complaint, and with my limited experience I can do little more than describe what I have seen. The only thing I have met with in any publication concerning it, I take the liberty of transcribing; it is from a work of the late Dr. Forbes of our service.

“In many cities of the East, frequently visited by the Plague, as Aleppo, Mosul, Baghdad, Bussorah, Ispahan, &c., the population constantly suffer from a disease which may be called indolent and malignant Furuncle, often closely resembling Carbuncle, and known by various names as, the Date Boil, Bussorah Boil, Maldalep or Atesh Farse (Persian Fire) which are all identical, but which have been confounded with the Malignant Pustule produced by morbid animal matter. They have, however, no such origin, but are in the strictest sense endemial; affect all classes of the population, old and young, and are so universal, that scarcely an individual can be found, who has not suffered from them, and

who does not bear their marks in unsightly scars on the face and extremities." Men, women and children, of all ages and of every caste, are equally liable to it, and I believe no one escapes if long enough resident in the country. The lower animals, even do not seem to be exempt from it. I have seen well marked Boils on young dogs; and in them they run the same course as in the human subject. They have also been observed on monkeys.

The disease at first appears as a small pimple, which slowly, but steadily enlarges, becoming of a deep purple colour, and acquiring a hard base. There are two varieties; one called the *male* the other the *female*. The male never becomes a sore, but continues as a boil, on the top of which successive crusts form, while constant desquamation of the cuticle takes place around the crust until the disease has expended itself, when the parts assume a healthy state and little mark is left. The female, on the contrary, soon assumes the form of a sore with oedematous swelling of the neighbouring parts, attended with considerable pain. The sore is deep with hard inverted edges, and discharges a sanious watery pus; it sometimes attains the size of half a Rupee; but more generally it does not exceed that of a four anna piece. It is seldom that there is only one mark; on the contrary there are generally a number varying from two to a dozen. The most common situations are the hands and feet; or to be more particular the in-step and wrists, but it is by no means uncommon on the forehead and cheeks, particularly in children.

The natives look upon it as incurable, and as all the many medicines used both externally and internally by my predecessors and others have proved of no avail, I had little hope of effecting a cure. Believing the disease to be entirely constitutional, I determined to give Hydriodate of potass a fair trial, not being at the time aware that it had already been tried without success. When the disease was still in the primary state of pimples, I attacked them with repeated applications of Tincture of Iodine externally, while I continued the use of Hydriodate of potass internally, until it produced so much constitutional irritation, that I was obliged to discontinue it. At first I had great hopes of being successful, but the amendment was only temporary, and was succeeded by a great change for the worse.

The disease is a most interesting one, and he who can discover a remedy for it, will be hailed as a benefactor by the inhabitants of those countries in which it is endemic; but every thing that would be judged most likely to prove useful, has already been tried without success.

No. 9.

Two cases of Hydrophobia in one of which the inhalation of the Vapor of Chloroform was practised. By J. PEET, Esq.

Presented, December 1849.

A Purwarree, a horse keeper about 33 years of age, was admitted into the Jamsetjee Jeejeebhoy Hospital about 3 o'clock, in the afternoon of the 11th September, 1848. It was stated by his wife who accompanied him, that he had just landed from a boat, which arrived on the morning of the same day, from the Gulf of Cambay—that he had been taken ill on the passage, two days previously, but that he had only been in his then condition since the preceding night.

When first seen, almost immediately after admission, he was sitting on the end of a cot, with both his hands pressed against his ears, as if to exclude the least noise. His head was bent forwards, and his eyes fixed on the ground; and when spoken to, though quite sensible and capable of answering questions, he could not be made to look up. The attempt to remove his hands, seemed to give him great distress; he resisted with much de-

termination, and declared his head was full of wind. Although sensible, he was disinclined to speak, unless pressed to do so, but his answers were quite rational, and he declared he had no idea of the cause of his present illness. His face was expressive of great suffering—Skin covered with cold moisture—Pulse feeble and rapid. The disinclination to speak seemed to arise from the distress, which the effort occasioned him—his articulation was interrupted by deep sighs, and the utterance of each word was attended with a sort of shudder. His wife declared, he had taken neither food nor water for 2 days. Whilst questioning the patient a small quantity of thickish looking saliva, was seen adhering to the corners of his mouth, and a larger quantity was noticed on the ground under him. A dose of the Hospital Diaphoretic Mixture, was ordered to be brought; when told, that he must take the medicine, he removed his right hand from his head, seized the vessel and by apparently a desperate effort, poured the contents into his mouth. In an instant he spat them out, jumped from where he was sitting, and ran towards the end of the ward. He was led back to his seat. He came quietly and made no remark. His wife was now questioned as to whether he had been at any time bitten by a dog. She denied that he had ever been bitten. A small cup of water was brought to him, and he was told that it was “water for him to drink.” At first he took no notice, but on being told to drink the water, he glanced for a moment at the cup, and instantly sprang into the middle of the room, several feet from the cot. He then as before, ran towards the end of the ward, but with stronger marks of terror, apparently fearing that he should be pursued with the water. After two or three minutes he returned voluntarily to his seat, but made no remark. He was now told to look up. At first he appeared unwilling to make the attempt, as if moving the head gave him pain. At length, however, he raised his head, but only for a moment, as the movement seemed to be attended with great suffering. Whilst making the attempt to raise the head, twitches of the muscles of the neck were observed. His wife was again questioned, and again denied that he had ever been bitten by a dog. He was now removed into a small room. Soon afterwards he said he felt sick, and asked for some water, which was brought to him, but, he no sooner saw it, than he threw himself on the floor, in a state of the greatest agony; he rolled from one end of the room to the other, striking himself against any thing that came in his way, without apparently being sensible of the blow. This paroxysm lasted about 10 minutes; he then became quiet; sat on the ground with his back against the wall, and his hands applied to his ears. His wife, at this time being again pressed to say, whether he had ever been bitten by a dog, admitted that about six months before, he had been bitten in the leg at Ahmedabad, by a strange dog which ran away, and nothing more was known of it. The wound healed in a few days. On examination two small cicatrices were visible at the inner side of the left leg, about two inches below the knee. They were not swollen, nor was there any surrounding redness or tenderness of the skin. A Pill of Opium and Ipecacuana was given to him; he took it between his fingers, opened his mouth as wide as possible, and thrust it into the pharynx. He afterwards remained in the same posture for about 10 minutes, apparently in great suffering; suddenly without any observable cause he threw his hands down from his head, stared wildly round the room, and in an instant sprung into the middle of the floor. The violence of this paroxysm was extreme. Two men held him down and tried to keep his head upon a pillow. He drew them from one part of the room to the other. At one time, he would make the most violent spring upwards, at another he would jump nearly across the room, occasionally his hands were thrust violently into his mouth, as if to remove the tenacious viscid saliva, which seemed to collect in his throat and hang about his lips. During the whole of the paroxysm one hand was frequently engaged, in scratching the outer side of the wounded leg; at length apparently worn out, he gradually became

quiet, and again seated himself on the floor with his back against the wall. The Pill of Opium and Ipecacuana was again given to him, and he remained for about $\frac{3}{4}$ of an hour, without a return of the paroxysm. At half past 6 o'clock, in the evening, I paid him another visit; a paroxysm was then present more violent than any that had preceded it. It was with the greatest difficulty that he could be held down upon a mattress; expectoration of thick adherent saliva was almost constant; his hands were incessantly thrust into his mouth, and there was frequent hawking. From this time, the paroxysms became more frequent and more severe, and he died in one more severe than the others at half past 9 o'clock. No post mortem examination was made.

Edward Delany, aged 7 years, an European boy, was brought to the Jamsetjee Jeejeebhoy Hospital, at the latter end of November 1848—having been bitten by a dog. The wound was situated over the left superciliary ridge, and was of considerable size and depth, a portion of the integument being entirely torn away. The boy's father was sent at the time to make inquiries about the state of the dog; and from the information he received, there appeared good reason to believe the animal was not rabid. The wound was dressed and in about 3 weeks it had cicatrized. On the 26th December (1 month after receiving the bite), the boy was brought to the Hospital at 7 o'clock in the morning. His father stated that for 2 days he had seemed uncomfortable and out of health, but did not make any complaint. In the early part of the preceding night, he went to sleep at the usual hour, but was restless, frequently starting up in a state of alarm. Towards the middle of the night he awoke and did not again sleep, except for very short periods. It was then noticed that he seemed pale, and that his face was changed in expression; he looked frightened and anxious. His skin was sometimes cold and clammy, at others hot and dry, and these different states succeeded one another at very short intervals, and were of very short continuance. At times his alarm was very great, and he would not allow his father to leave him for a moment. It was noticed that a good deal of thickish saliva collected about his lips, and evidently gave him annoyance, for he frequently tried to remove it with his fingers. During the whole night he asked at intervals for water, which he drank, but he appeared to have pain and difficulty in swallowing. He was now and then troubled with a short cough, which seemed to distress him, and at these times his father says his chest appeared fixed, and he had difficulty in getting his breath. The following is the note of his state taken on admission: "He is now lying in his sister's arms. His face is pale, thinner than when last seen (about a week ago), and at times haggard and anxious in expression; every now and then, however, the expression is calm and placid, and he seems disposed to sleep, but the least movement disturbs him. The skin is cold and covered with moisture. When touched, he shrinks from the hand, and says it gives him pain, especially when it is laid on the forehead. He begs of his father not to allow any one to touch his head. The least attempt to change his posture excites great alarm, and his face then becomes extremely anxious. The cold air does not appear to affect him; the windows are all open, but he does not complain of the draught. He frequently wipes his lips with a handkerchief, at times pushing a portion of it into his mouth, as if to clear his tongue of something adhering to it. The pulse is not frequent; tongue covered with a brownish fur; bowels are confined. He has just asked for water, but says it must be warm, otherwise he cannot drink it. A small quantity is brought in a pewter vessel. He expresses no alarm at the sight, but seems anxious to get hold of it; when given to him, he seizes the vessel with both hands and fills his mouth with a sort of gulp, but afterwards swallows it slowly and with difficulty; after each mouthful there is catching of the breath, exactly resembling that which occurs when a person slowly walks into cold water. After drinking the water, he says he is cold and wishes to be well wrapped up with clothes." No medicine was given at this time. In the course of the forenoon, there was

some tension and tenderness of the abdomen, and his bowels had not been moved. A powder of Calomel and Jalap was given, which soon afterwards operated, when he seemed better; appeared to suffer less, took some tea and an orange, and talked a good deal, though not quite rationally. About the middle of the day he complained much of pain of the left ear, and lay with his arm under that side of the head, as if the pressure gave him relief; at times he was said to be apparently free from suffering, when suddenly without any obvious cause, he would become alarmed or complain of chilliness, and desire to be covered with the bed clothes. The pulse continued moderate; skin cool, if any thing rather under the natural heat. At the evening visit he was in much the same state; a draught of the Tinct: Morphia was taken. For a couple of hours after the draught he remained quiet, but did not sleep. At 10 o'clock, he sprang out of bed and tried to run out of the room, after which he became extremely restless. He would not allow his clothes to remain upon him, even his socks irritated him. He fancied the room filled with spectres, and that his skin was covered with worms, which he was constantly endeavouring to remove with his fingers. Skin raised above the natural heat; pulse more frequent, but of less strength. At 12 o'clock the restlessness and suffering were very great, and evidently becoming more aggravated. At $\frac{1}{2}$ past 12 the inhalation of Chloroform was commenced; 15 drops were put upon a sponge and held under the nose. The contact of the moist sponge with the lips produced a violent convulsion, which lasted for several minutes, but after he recovered from this attack the Chloroform was inhaled without difficulty. Two drachms were expended before he was under its influence, about 25 drops being at each time put upon the sponge; complete insensibility for a few minutes was produced. At 3 a. m. his state is thus stated. "Since the inhalation of the Chloroform he has been much more quiet. He has at intervals short spasmodic catchings of the breath, but has not had a paroxysm of any violence. He is constantly talking, but not rationally. Has drank water several times, and apparently without much difficulty. Pulse has lost a good deal of its power and is more frequent. Bowels have been two or three times moved within the last hour." This state of comparative ease continued until $6\frac{1}{2}$ a. m. when he again became restless and excited. At $7\frac{1}{2}$ when the Chloroform was a second time used, the following note of his symptoms was taken "Breathing hurried and catching. Frequent short convulsive attacks excited by any thing coming into contact with his skin. He imagines insects are crawling about his skin, and that he has a rat inside his trousers. He is greatly alarmed if any one approaches him, and scarcely remains for a moment in one position." He was now brought completely under the influence of the Chloroform and the effect more or less kept up for about 30 minutes. The muscles became relaxed and he lay for some time quite quiet. At 9 o'clock it is noticed that, "Since the Chloroform was administered he has been easy and quiet, until within the last quarter of an hour. Has eaten part of a plantain, and some biscuits. He is now, however, much excited; screams if any one approaches him suddenly, but his father by doing so slowly can take his hand without causing him much uneasiness. Has just had a very violent convulsion." The Chloroform was again used, he was brought completely under its influence and kept so for several minutes. The relief was marked, and he was quiet for a short time afterwards. At 12 o'clock however the convulsions were very frequent and excited by the least movement. The viscid tenacious saliva collected in larger quantity, and occasioned the greatest distress. The pulse was frequent and feeble. Until 5 o'clock in the evening the Chloroform was inhaled every hour with relief each time, but only for few minutes, and the periods of relief became each time shorter. At 5 o'clock he was evidently much worse; the paroxysms were almost constant, and he required to be held down. Pulse very feeble and rapid. At 7 o'clock he was seen for the last time. He died at 8 o'clock.

No. 10.

A case of poisoning by Arsenious Acid in which Arsenic was detected in the Brain, Lungs, Liver, and Kidneys. By HERBERT GIRAUD, M. D. Edin :

Presented, October 1848.

The discovery of Arsenic in the blood, and in the viscera of persons poisoned by arsenious acid was announced by Orfila in the year 1840, and has since been corroborated by some few chemists.* The following is a case in which that substance was most distinctly recognized in the Brain, Lungs, Liver, and Kidneys.

At 6 P. M. of the 3rd of January last, A Mahratta man, named Oma Rowjee took, for the purpose of self-destruction, a portion of Arsenious Acid, the exact quantity of which could not be determined. At 8 P. M. he was seized with violent vomiting and purging, which continued throughout the night ; and on the following morning at 10 A. M. he was brought to the Jamsetjee Jeejeebhoy Hospital. The vomiting had then somewhat abated ; the report was, "has just passed one greenish coloured mucous motion ; no appearance of exhaustion ; surface of natural temperature ; pulse 120, weak ;—tongue clean, very florid at the tip and edges ; very slight general abdominal tenderness.

Three dozen Leeches were applied to the abdomen and an ounce of Castor Oil with thirty minims of Laudanum administered. (1 P. M.) "Has vomited two doses of oil that have been given him ; has passed one greenish coloured mucous motion since last visit ; surface of natural temperature ; pulse 124, weak ;—he is very restless, and has frequent cramps of the lower extremities. Effervescing draughts with Tinet : Opii. m. 20 every hour : to be allowed to drink freely of milk. (4 P. M.) "Again purged ; motions mucous ; pulse very feeble, upwards of 120. No return of vomiting : no abdominal tenderness. Emplas : Cantharidis 6 inches square to the epigastrium. Continue the effervescing draughts with Laudanum every second hour. (January 4th 7 A. M.)" No return of vomiting ; several motions in the night, containing much mucous with some specks of blood ; skin soft ; tongue moist, not florid ; pulse scarcely perceptible ; he is very restless. Aromatic spirit of Ammonia with Camphor mixture every hour. Died at 11 A. M. *forty-one hours* after taking the poison.

Post mortem examination made six hours after death. Stomach distended with rather more than two pints of a yellowish flocculent fluid : its mucous surface pallid, with here and there dull red and dark purplish spots, chiefly on the prominences of the rugæ, and more abundant near the pylorus, and with many adherent minute white particles. The mucous membrane of the intestines, so far as it was examined, presented no other morbid appearance than that of an unusually abundant covering of tenacious bright yellow mucous. Lungs highly congested, of a deep purple colour, very friable, emphysematous, and on incision, pouring forth sanguineous frothy serum. Brain and its membranes highly congested ; much serum in the arachnoid, at the base of the cerebellum, and in the ventricles.

Chemical Analysis. As the patient in this case survived for many hours after taking a very considerable quantity of arsenious acid, a favorable opportunity was presented for attempting the chemical detection of the poison in the viscera. For this purpose therefore I removed the whole Brain,—one Lung,—about half the Liver,—the Spleen, and one Kidney, as well as the Stomach, and its contents,—the Duodenum and a portion of the small intestines.

* In the "Lancet." Vol. 1. 1848. p. 127. is an extract from the "Gazette Medicale" relative to a case of poisoning by Arsenious Acid in which M. Legroux obtained "*arsenical stains*" by means of "Marsh's Apparatus" from the urine of the patient, and from the serum of a blister.

These parts were each separately subjected to Reinck's process for the separation of arsenic from organic mixtures.*

Each organ was cut into small pieces about the size of nuts, and boiled for twelve hours in pure distilled water strongly acidulated with hydrochloric acid, water being added from time to time to make up for the loss by evaporation.† The liquor was then strained off, and evaporated to about four ounces; a little more hydrochloric acid was then added,—the liquor raised to boiling;—pure copper chips thrown in, and the boiling continued for fifteen minutes. From each of the liquors, with the single exception of that obtained from the spleen, the characteristic grey deposit was obtained upon the copper. In each instance, a white sublimate of arsenious acid was formed when the copper chips were heated in a capacious test tube, and on dissolving the sublimate in about a drachm of distilled water they gave well marked results with *ammoniac-nitrate of silver*, *ammoniac-sulphate of copper*, and *sulphuretted hydrogen*. The sublimate obtained from the stomach and intestines were dense and very abundant:—those from the other organs varied from a clearly defined white but translucent ring, to a mere cloudiness on the side of the test tube:—the largest amount was obtained from the Lungs, next from the Liver, then from the Kidney, and least of all from the Brain. In the Spleen no traces of arsenic could be detected.

No. 11.

Abstract of Annual Report of the Tannah Civil Surgeoncy for 1847. By Surgeon WINCHESTER.

Presented by the Medical Board, February 1849.

In this year's report it is stated, that certain improvements in the Diet of the Prisoners, with their removal from the Old Town Jail to that of the Fort, had been conducive to the health of the convicts. It was remarked in 1846, that prisoners natives of India, used to be suddenly seized with Scorbutic symptoms—that when their constitutions were thus vitiated, medicine or diet had little influence on recovery, and that a great proportion of the sick, whatever the predominant complaint, died: whilst the Malay and Chinese convicts, who had animal food allowed them twice a week, were—though expatriated—the healthiest class of prisoners. The inutility of loading an already vitiated system with either food or medicine having been amply proved, it was proposed by the Superintending Surgeon, as a preservative of health that, all the prisoners should be, indiscriminately, allowed six ounces of mutton twice a week, or an equivalent in ghee, oil, or ghoor (sugar)—a recommendation Government sanctioned—taking effect from the 7th March 1847. Besides this, a further suggestion was carried out on the 11th of April in allowing the prisoners, daily, half an ounce of “cocum,” the dry fruit of the “*Garcinia Purpurea*” one of the mangosteen tribe, which has an agreeable acid flavor, and is almost universally used by the natives on this side of India with their curries.

That these two improvements in the diet of the prisoners had a beneficial effect, became soon very obvious. Scorbutic symptoms among the prisoners almost entirely disappeared—disease became amenable to treatment—the number of recoveries daily increased, and mortality became, in comparison with 1845 and 1846, trifling.

Throughout the year 1847, 2010 convicts were inmates of the Tannah jail—the average daily strength being 949. On the 1st of January, the number of convicts was 629—745

* Great care was taken to keep each organ separate from the rest throughout the process.

† The purity of the water and hydrochloric acid had been previously proved by Reinck's method.

were received from the subsidiary jail in May; 554 of whom were returned to that jail in November and December last, whilst 636 prisoners have been admitted during the year, sentenced either by the local courts of the Concan—or received from other jails to be transported as opportunity offered.

A register of these 636 prisoners was kept, and each minutely inspected on admission. The result of this inspection was, that 503 were admitted healthy, or free from actual disease—and 133 were received either old, worn out, sickly, or laboring under actual disease. This register gave a further result of 88 sent for transportation, 177 released—3 dead, and 363 still in jail.

With reference to “paras” 19, 20 and 22 of the report for 1846, and especially with reference to “para” 22—where it is stated—convicts should never be sent from above the ghats to the Concan jails, the following table is formed.

Strength of Admissions into Jail.		Admission of each class into Hospital.	Deaths in each class.
Concan Christians.....	25	5	..
” Mussulmans.....	83	16	3
” Hindoos.....	824	254	20
Total.....	937	275	23
Deccan Mussulmans.....	73	45	..
Scinde Mussulmans.....	34	9	2
Goozerat Mussulmans.....	1	1	..
Deccan Hindoos.....	720	371	29
Goozerat Hindoos.....	16	37	3
Hindustan Hindoos.....	34	4	1
Madras Hindoo.....	1	1	..
Singapore Hindoo.....	1	3	..
Total.....	880	471	35

If it is taken into consideration that in a floating convict population of an average daily strength of 949 prisoners, the mortality has only been 66 (1 man killed in attempting to escape not included)—or a percentage something under 7 per cent, the deaths cannot be deemed great, and in comparison with former years, trivial.

The table No. 2 of 1846 is continued to illustrate this.

Years.	Average daily number of Prisoners.	Total number of cases under treatment during the year.	Average daily number of sick for the year.	Percent proportion of average daily number of sick with number of Prisoners.	Total Deaths.	Ditto excluding Cholera.	Per cent proportion of deaths to the daily number of Prisoners.	Ditto per cent excluding Cholera.
1842	436	377	21	4.8	63	36	14.45	8.26
1843	991	1060	53	5.8	92	80	9.28	8.07
1844	1054	1070	48	4.6	97	49	9.20	4.65
1845	1224	1611	70	5.7	266	179	21.7	14.6
1846	1041	1155	63	6.05	267	220	25.6	21.1
1847	949	878	71	7.481	66	66	6.954	6.954

No Cholera occurred during the year 1847, but it is to be noted that all the deaths, which occurred in the Tannah jail do not properly belong to its inmates ; as from time to time sick

convicts were sent in from the subsidiary jail on Salsette ; of these 17 died—as did 5 of the unfits received at the close of 1846 from other zillahs ; whilst, 55 sick were admitted on the breaking up of the Bandoop jail. However, the state of both jails will be more explicitly shewn, when it is stated that the average strength of the subsidiary jail from January to May inclusive was 833, with an average daily sick of 181—the deaths being 13 (not including one man who died suddenly without treatment) or a mortality of 79 for the whole year in both jails—no death having happened during last December at Bandoop : the causes of death in these 13 prisoners were—5 from Thoracic Inflammation—4 from Dysentery—3 from Wounds—and 1 from Fever—their castes were—5 Bheels—3 Mangs—2 Ramoosees—1 Dhobie—1 Kathory, and 1 Maratha. The causes of deaths among the prisoners in the Tannah jail were

from	Fevers.....	18	Splenitis.....	1
	Ulcers	11	Ophthalmia	1
	Dysentery	8	Fracture	1
	Atrophia	7	Cachexia	1
	Scurvy	4	Primary Syphilis	1
	Diarrhœa.....	4	Mania.....	1
	Pneumonia	2	Apoplexy.....	1
	Old age	2	Phthisis.....	1
	Rheumatism	2		

The months in which the mortality occurred were January, 5 ; April, 8 ; July, 0 ; October, 5 ; February, 11 ; May, 5 ; August, 2 ; November, 4 ; March, 6 ; June, 1 ; September, 1 ; December, 18.

The early and later months of the year being most fatal—the early months, owing to the Bandoop mortality and that of November and December to the prevalence of Remittent fever. May, June, July and August, which have formerly been the most unhealthy months, having been the healthiest—a corroboration of the statement made in para : 17 of the report for 1846—and which the other Annual Returns will also illustrate.

No. 12.

On the use of Anæsthetic Agents in the practice of Midwifery. By J. R. MILLER, Esq.*

Presented, July 1849.

Having had several opportunities of testing the Anæsthetic virtues of Ether in surgical operations, and having obtained results quite as satisfactory as those which followed its employment at home, my attention was soon arrested by the successful accounts which from time to time have appeared in several medical publications of its application in the practice of midwifery, and having carefully studied all that has been advanced in its favour by Professor Simpson, Dr. Protheroe Smith, Landsdowne, and others, I resolved with the written testimony of such able men to support me, to make trial of it on the first opportunity provided, of course, neither constitutional nor other symptoms existed to contra-indicate its use.

I have now given it in one or two cases, and am glad to say the results were most gratifying, fully bearing out all that has been adduced in its favor, and as I am not aware of its

* *Note by the Secretary.*—Dr. Miller's paper was originally confined to the inhalation of Ether, during Parturition, and was presented to the Society in February 1848. From the delay which unavoidably occurred in its publication, the Committee deemed it proper, to resubmit the paper to Dr. Miller for revision—and which was accordingly done. The present communication has been substituted for that formerly transmitted to the Society.

having previously been resorted to in obstetric practice in this country, I beg to submit the two following cases with a few concluding remarks.

Case I.—Mrs.—in the enjoyment of excellent health, and the mother of several children, having reached the full time of pregnancy, awoke in labour at $\frac{1}{2}$ past 1 A. M. Her former confinements had been easy, and attended with nothing unusual. Upon examination I found the labour considerably advanced, the presentation natural, the *os uteri* thin, soft and considerably dilated, and the pains recurring every five minutes; these she described as much more severe than any she had experienced on former occasions. The first stage was completed by $\frac{1}{2}$ past 4 o'clock, the membranes shortly after broke, and the head plunged deep into the pelvis. Her pains now became so urgent that she could not restrain her cries, and upon my proposing to alleviate her sufferings by giving her ether, she readily consented.

I employed a sponge having a large hollow in its centre sufficient to cover the mouth and nostrils. This I saturated with \mathfrak{z} ii. of purified* Ether, and applied it to the face; slight cough was produced and she made attempts to pull away the sponge, but in less than a minute she was tranquil. Several contractions took place without her being aware of them. The labour progressed, and I frequently remarked what Baron Dubois has previously observed, viz. the abdominal muscles acting with the uterine whilst all the other voluntary muscles like the former, were completely relaxed. This was not the case constantly, however, for when the contractions of the uterus, and also the actions of the abdominal muscles were very considerable, she pulled strongly at a towel attached to the bed, whilst pressing her feet firmly against its end, at the same time that she aided the uterine contractions by forcibly bearing down; but although this has been supposed to take place only when the woman is not entirely under the influence of the Ether, and indicative of the return of motion before that of sensation, yet on returning to consciousness,—which she generally did on taking away the sponge after every contraction—she said she had felt nothing, nor was she sensible of having made any effort to assist herself.

Labour was now nearly at an end, the head pressed upon the perineum which readily dilated and admitted of its passage: another contraction following, the shoulders with the remainder of the body of the child were born at $\frac{1}{4}$ to 6. The secundines were thrown off in 15 minutes unaccompanied by any discharge, and the uterus contracted immediately after.

The Patient felt no exhaustion; her pulse was tranquil and the surface cool, and although she told me that now and then she had been aware of slight pain, yet that she had suffered considerably more during the first half hour after awaking, than she had done throughout the whole period subsequent to inhaling the Ether.

She consumed in all \mathfrak{z} iiiss. and whilst under its influence the uterine contractions did not perceptibly affect the pulse, nor was that of the child's at birth much above 136, the normal rate; she had very few after pains, and those chiefly on putting the child to the breast.

Case II.—Mrs.—of a strong and robust constitution pregnant with her eighth child.

About the middle of the eighth month of pregnancy, she became very low spirited and nervous, and looked forward with great dread to her approaching confinement, thinking that something must certainly go wrong, and expressing great doubts of her surviving the issue. Her former labours had all been natural, but some of them tedious and severe.

This state of anxiety had continued for about a month when I was summoned on the evening of the 10th ultimo and informed that “the waters had burst” and continued to escape,

* The Sulphuric Ether as received from the stores, contains an excess of Sulphurous Acid, which generally causes irritation of the fauces when first inhaled, besides lengthening the period necessary for the anæsthetic effect, to be produced; this however is easily removed by adding \mathfrak{z} ss. to \mathfrak{z} i. of Bicarbonate of Soda to the Ether and shaking the bottle well; it is further purified by repeated washing in cold water.

especially on any little exertion ; no pains of any kind had occurred, and she calculated that labour ought not to come on for a fortnight.

Early rupture of the membranes being a diagnostic sign of preternatural presentation an internal examination was proposed and agreed to. The *os uteri* was high up and directed backwards, and I could not do more than reach its anterior lip ; the uterine tumour was well marked, prominent and hard, so that no doubt remained in my mind that other than the head was the presenting part.

As the Patient was in a highly excited and nervous state, I administered a full dose of laudanum which procured her a good night's rest and tranquillized her considerably.

During the whole of next day the *liquor amnii* oozed slowly away, and it was not before the afternoon that pains came on, but they were trifling and at long intervals, and continued of the same character throughout the night. 12 9 A. M. The *os uteri* soft but not much dilated ; head presenting in the first cranial position ; uterine contractions scarcely perceptible ; parts soft and yielding ; patient anxious and fretful.

Under these circumstances further delay would have been improper, and much good was to be expected by assisting nature a little. I therefore freely ruptured the membranes, gently dilated the *os*, and pressed the head back towards the *sacrum* to admit of the escape of the *liq. amnii*, which at once came away in a gush. Almost immediately after, pains of a more decided character commenced and for some time continued strong and effective ; but these again in a great measure died away.

At this stage of the case the Patient became excessively nervous and desponding ; her pains though neither so frequent nor severe, were borne with much less patience and firmness than before, and she expressed an urgent desire to make trial of the Ether. As there was nothing in her case to decide me in withholding it, but much to encourage me to expect the most beneficial results from its exhibition, the inhalation was immediately proceeded with ($\frac{1}{2}$ past 10 A. M.). It acted almost instantaneously, and the uterus seemed as if roused into sudden activity,—the contractions becoming forcible, and advancing the labour.

The sponge, as on the former occasion, was employed, and just that degree of etherization established in which sensation of pain is abolished, while partial consciousness remains. During the intervals the sponge was removed and again applied on the approach of the uterine contractions, which continued effective and without interruption ; the head was soon forced from the uterus, and just as it began to press forcibly upon the perineum, I increased the quantity of Ether and the head was born whilst the patient was in a state of complete insensibility. After another contraction which disengaged the shoulders, the Ether was discontinued, and her return to consciousness was prompt and spontaneous.

The temporary binder which I generally make use of, was then tightened and a pain following the placenta* was forced entire from the uterus, which at once contracted. The mother has made an admirable recovery and her child is progressing satisfactorily.

Whilst I was attending this last case I received a parcel of Chloroform overland from Messrs. Duncan Flockhart, & Co. the Chemists in Edinburgh, who are the manufacturers of that which Professor Simpson himself uses, and being called to a confinement most fortunately only a few days afterwards, I thus enjoyed perhaps, the honor of being the first Practitioner on this side of India, to make trial of this extraordinary agent in obstetric practice.

I need not enter into a minute detail of the case, but merely take notice of those points in it, which illustrate the decided benefit of having recourse to anæsthetic† agents in

* In her former confinements the after birth required always to be removed artificially.

† In every case when organic disease, especially of the heart and large vessels, the lungs, or a tendency to vascular congestion of the brain, is to be discovered, their employment ought never to be thought of.

most cases of labour, whether natural or otherwise ;—and the immense superiority of Chloroform over Ether.

The patient was of a very delicate constitution, pregnant with her 4th child. The first had been born after a tedious and severe labour. The others were premature ; with all of them she had been so seriously exhausted by pain and suffering, as to require the free use of brandy and other stimulants, before she could be brought round, and her recoveries had been slow and protracted. She had now reached her full time, and labour came on at $\frac{1}{2}$ past 12 on the morning of the 6th instant.

On being summoned, I discovered that the antero-posterior or conjugate diameter of the pelvis, was slightly less than natural, although not to such an extent as to render it probable that the natural powers would not in the course of time be sufficient to complete the delivery, unless the child should prove unusually large, but it at once accounted for her former labours having been so difficult, and also made me prepared to witness in this instance likewise a severe and protracted confinement.

I began the Chloroform at 6 o'clock—half a drachm poured into the hollow of a sponge and applied over the mouth and nostrils, threw her into a state of unconsciousness, and by occasionally adding a few drops, this was renewed as often as the pains rendered it necessary.

There was no precursory stage of excitement, nor was coughing present, both of which so frequently attend the use of Ether ; the return to consciousness was prompt, and in the intervals neither headache nor other unpleasant effect was produced. I was thus enabled for upwards of two hours to time the chloroform so exactly, that the pains were all passed over in silence, and without the patient being aware of them.

This is not such an easy matter to regulate whilst employing Ether ; for as its action is not so immediate, the pain is often half over before the desired effects can be produced. As the contractions of the uterus were now becoming much more frequent and severe, I increased the quantity of chloroform, which induced a profound and tranquil sleep, in which state I kept her for two hours longer, when the child was born.

Nothing could possibly have been more satisfactory and gratifying than to observe her during this period ; her sleep was as calm and peaceful as that of a child, with a smile every now and then passing over her countenance ; notwithstanding the uterus was all the while contracting with great force and frequency, and even at the moment the head was passing into the world,—allowed by all to be that of the most intense agony—not a moan escaped her, nor was there the slightest deviation in any one respect from the tranquillity, which had reigned throughout. Her pulse which I frequently noted averaged 75, full, soft, and compressible ; the skin was cool and pleasant, and so completely did her whole appearance betoken any thing rather than pain and suffering, that even the by-standers were ignorant of the child's birth until I announced it. On awaking, which she did very quickly, her fresh inquiries were to know if the child would soon be born, and, although it was screaming close by, she could only with difficulty be persuaded that the happy event had already taken place.

I used in all \mathfrak{z} ix. or \mathfrak{z} ii. by weight of chloroform ; a slight allowance must however, be made, owing to the greater amount of evaporation which occurred under the use of the sponge than if I had employed the inhaling apparatus, which I have now and then had recourse to in administering Ether in surgical operations ; but the saving of material by no means compensates in my opinion for the extra trouble imposed upon the practitioner in using any sort of apparatus, no matter how simple or easy of adjustment ; at home it is quite different ; there, we are never at a loss for assistance under such circumstances, and without leaving the side of your patient can sufficiently superintend the anæsthesia by means of an apparatus in the charge of an intelligent person : but considering the means

and appliances at hand in the majority of accouchments in India, this in most cases cannot easily be carried out; and those who attempt, while giving the attention necessary to the confinement itself, especially towards the termination of the 2nd stage, and still more if any artificial interference should be requisite, to induce and maintain by means of an apparatus, when efficient aid is not at hand, that degree of hypnoticism in which sensibility to pain is abolished while that of consciousness often remains in a partial manner, or is exchanged for a quiet tranquil sleep, will assuredly be disappointed, and be glad, as I have been, to put the ingenious but bothering thing aside, and depend upon a sponge or even a common pocket handkerchief moistened with the Chloroform from time to time, to produce all those wonderful and gratifying results, which we are led, and not in vain, to expect from the proper exhibition of this most valuable Agent, in divesting the process of human parturition of all its usually attendant agony and suffering.

In this case it is shown that the patient was under the influence more or less of Chloroform for 4 consecutive hours, during which time she consumed about $\frac{3}{4}$ ii; in the intervals of consciousness, not a single disagreeable symptom was present, and her sensations as she has subsequently described them, were throughout of a highly agreeable and pleasant nature.

A good deal of hæmorrhage occurred shortly after the infant was born, rendering it necessary to extract the placenta without delay, and this with powerful pressure over the *fundus uteri* was sufficient I am glad to say, to produce speedy and prominent contraction; it was only to be expected, however, that with such a delicate and feeble constitution this quantity of blood could not be lost with impunity; she very quickly became faint, and then totally unconscious, with cold clammy surface and a pulseless wrist. How different were the two forms of insensibility! How opposite the causes! How innocuous the one, how dangerous the other—the former hailed by us all as the harbinger of peace, the latter viewed and not without reason, with anxiety and alarm.

This state of syncope however gradually yielded to stimulants, frictions, and other appropriate remedies. A large opiate was exhibited and the patient composed herself to sleep from which she awoke feeling stronger than she had done a fortnight later after her former confinements. She has continued to recover in the most favorable manner and her child is healthy and well.

I have not hesitated to bring prominently forward the danger attending the latter part of this case, and in doing so, hardly anticipate that any who are professionally competent to pronounce an opinion upon the subject will regard the flooding as in any way connected with the previous Administration of the chloroform. As well might the extraction of teeth for the cure of tooth-ache be brought into disrepute, because a person having a hæmorrhagic diathesis gets one of theirs removed and sinks afterwards from the loss of blood.* Those who take a more enlightened view of the matter, will be inclined rather to esteem this an argument in favor of introducing anæsthetic agents into the practice of midwifery—for had my patient in addition to the alarming symptoms occasioned by the loss of blood, been previously exhausted and worn out by the pain and suffering, she would inevitably have undergone in such a tedious labour—the prognosis would have been most unfavourable.

But as the employment of Chloroform is so great an innovation upon the established rules for conducting a confinement, and some possessing minds of a sceptical tendency may have some difficulty in divesting themselves of the idea, that the state of relaxation produced by it was not in some measure responsible for the subsequent hæmorrhage, I would remind them of the occasional occurrence of floodings before Chloroform was ever dreamt of, and whichever one who has been thrown much in the way of obstetric practice in this country, cannot fail now and then to have witnessed. At home likewise, it is not unfrequent even

* A case in point occurred but a short time ago in Edinburgh.

under the most experienced hands. Dr. Robert Lee, the lecturer on midwifery at St. Georges' Hospital London, says, "flooding sometimes occurs in the most dangerous form, immediately after the birth of the child, where the previous stages of labour have been managed in the most judicious manner, where every thing has been done to quiet the action of the heart and arteries; the apartment kept cool; stimulants avoided, voluntary efforts to expel the child discouraged; the binder applied, and tightened in the progress of the two first stages of labour;—in a word, where every thing that is possible, has been done to prevent the uterus from being suddenly emptied of its contents, and afterwards from contracting in an irregular manner. In some women, in spite of all our care and precautions, a profuse discharge of blood immediately succeeds the delivery of the child, and they would soon die if we did not interfere and before the placenta was expelled."

From a review of the preceeding cases I think every one, non-professional included, must allow that two facts are sufficiently evident; the one, that anæsthetic agents relieve the mother from the pain and suffering attendant upon the process of parturition, and the other that they may be given without any bad effects resulting to either the parent* or her offspring.

Now even supposing that in every case this were all that they were capable of accomplishing. I ask, is it not enough! Surely it is no trifling matter for a woman to pass through an ordeal usually attended with pain incomparably the greatest that human flesh is heir to, and be the whole time perfectly unconscious of it! Some men holding peculiar views may think this a small point gained—but will women think so?

Professor Simpson while arguing the advantage of anæsthetic agents in midwifery, observes, "It is I believe education and custom, and perhaps the idea of its inevitable necessity, which have made the profession in general look upon the degree of maternal pain and physical suffering attendant upon natural labor as less deserving of consideration than in reality it is. They have in a great measure blinded us to its actual amount and importance."

Besides pain, as we all know especially when in excess and long continued, as in difficult and instrumental labours, acts most injudiciously in many ways, and according to Dr. Gooch and others, may even prove destructive to life. It was the anticipation of its inevitable occurrence and the dread of its severity, which caused in Case II. that nervousness and depression of spirits which came on nearly a month previous to labour, and continued in an aggravated form until the Ether was exhibited. Every author on midwifery has noticed the influence of mental emotion in disturbing and interrupting the favourable process of childbirth. Dr. Lee relates the case of a young married lady in labour of her first child, in whom the uterine action was so completely suspended from an excessive fear of dying during delivery, or being subjected to some frightful operation, that she would have sunk in a few hours, had the delivery not been effected by artificial means; now without going the length of supposing that in the case of my patient, it might ultimately have been found necessary to have applied the forceps to complete the delivery, yet it is worthy of remark that at the time of commencing the Ether, she was in a most depressed and nervous condition, with accelerated pulse, thirst, and profuse perspiration, but within five minutes from the first inhalation, the uterus began to act briskly and continued to do so throughout; her pulse fell to the natural standard; the surface became quite cool; and in the intervals of consciousness, she declared herself perfectly comfortable and free from care and anxiety of every kind.

The relaxation of the perineum at the most important moment, i. e. near the termination of the second stage when the head comes to press forcibly upon the external parts and

* Except in those instances where it is evidently contra-indicated; vide notes to page II.

there is always more or less danger of laceration especially in first labours ; the total absence after delivery of all fatigue and exhaustion ; the speedy contraction of the uterus, causing the after-birth to be thrown off quickly and spontaneously and thus greatly diminishing the risk of hæmorrhage ; and the rapid and perfect recovery of the mothers without a single disagreeable result occurring to either them or their children, were all exemplified in the cases before us, and have been observed and commented upon before by those at home, who first of all advocated the use of Ether, and now still more that of Chloroform in obstetric practice, and who are far better qualified than I am to give an opinion on the subject. I am only greatly pleased at having enjoyed sufficient opportunity to enable me to add my humble testimony to theirs in support of so great a blessing to suffering humanity, and I firmly believe that on whatever grounds Practitioners may set their faces against its general application, there can be little doubt that, if the public at home and abroad, are satisfied that women can bring their progeny into the world without suffering and that no bad effects are to be anticipated to either them or their offspring ; to say nothing of the other beneficial results already referred to, expectant mothers will of themselves before long insist upon Chloroform being as much part and parcel of the arrangements attending their accouchement, as the monthly nurse, the infant's clothes, or the Surgeon himself.

In conclusion, I have only further to add that by comparing the results obtained respectively from Ether and Chloroform, whether employed in surgical or obstetric practice, the decided superiority of the latter appears to be such as must speedily throw Ether completely into the shade.

The advantages which Chloroform possesses are both numerous and important.

1. The smaller quantity required 30 to 40 m. being sufficient to produce complete insensibility and this may be maintained for any length of time by occasionally adding a few drops.

2. Its action is more rapid and can be regulated according to the wishes of the operator, with greater certainty than where Ether is employed.

3. The insensibility produced is more complete, perfect, and longer sustained.

4. Chloroform does not occasion any previous stage of excitement, nor is cough or other irritation present, all of which frequently attend the use of Ether.

5. Its odour is transient and rather pleasant, and is not perceived at a distance from the patient ; thus the operator is not inconvenienced by it as he often is with Ether, which pervades the whole apartment, and is perceived in the patient's breath even for some days afterwards.

6. It produces neither headache, nausea, or other unpleasant symptoms ; and during its action, the sensations are uniformly agreeable.

If on subsequent trials the results are found to be as successful as those here recorded, Ether, as a hypnotic where Chloroform of good quality is procurable, is not likely to enjoy much countenance ; it must resume its place among the diffusible stimuli and leave to Chloroform that precedence it is so justly entitled to hold over all other known anæsthetic agents.



REGULATIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

M. D C C C. X L V I I I.

Objects.

I. The encouragement of the cultivation of Medical Science and its collateral branches by discussion at periodical meetings, and by the publication of original communications.

Constitution.

II. The Society is composed of Ordinary, Corresponding, and Honorary Members.

Ordinary Members.

III. Under the head of Ordinary Members are to be classed all who contribute to the funds of the Society, and all who are admitted in accordance with Regulation VII.

IV. All Medical men residing in India who can produce certificates of a regular medical education, are eligible as Ordinary Members.

V. Medical Officers of Her Majesty's or the Hon'ble Company's Service, are elected ordinary members of the Society on application by letter addressed to the Secretary.

VI. Qualified Medical Practitioners not belonging to Her Majesty's or the Hon'ble Company's Service, are elected by ballot at the ordinary meetings of the Society, and a majority of three fourths of the members present is necessary to secure the election.

VII. Assistant Surgeons on first entering the Bombay Medical Service are considered ordinary members of the Society, free of the payment of admission fee and annual subscription, and continue so for a period of two years, after which, should they not intimate their wish to be considered ordinary members by payment of the regulated admission fee and annual subscription, they are considered to have withdrawn from the Society.

Payments.

VIII. Ordinary members to pay an admission fee of Rs. 5, and an annual subscription of Rs. 12, payable in advance in the month of January of each year.

IX. Ordinary members absent from India, are not chargeable with subscriptions for the period of their absence.

X. Ordinary members neglecting to pay their annual subscription, for two successive years, are considered to have withdrawn from the Society, and are liable to have their names erased from the list of members, under a resolution passed to that effect, at an ordinary meeting of the Society.

Corresponding Members.

XI. Ordinary members on retiring from service in India, on being proposed and seconded at an ordinary meeting of the Society, are eligible by ballot, as Corresponding Members. A majority of four fifths of the members present is necessary to secure their election.

Honorary Members.

XII. Medical men of celebrity not residing in India, are eligible as Honorary Members. On being proposed, and seconded at an ordinary meeting of the Society, they may be elected at the next meeting by the unanimous consent of the members present.

Election of Office-Bearers.

XIII. The Committee of Management of the Society consists of eight members, elected annually from among the ordinary members resident in Bombay by the general vote of the ordinary members residing under the Government of Bombay.

XIV. The voting lists are circulated in the first week of November of each year, and the result of the election is declared at the next ordinary meeting of the Society.

XV. In the event of vacancies occurring in the Committee between the periods of election, such vacancies to be filled up in rotation, by the individuals who commanded the number of votes next to those of the members returned at the last election.

XVI. A President, and two Vice-Presidents of the Society, are elected annually from among the members of the Committee of Management, by the members of the Society present at the ordinary meeting at which the annual election of the Committee is declared.

XVII. The Secretary of the Society is elected biennially from among the ordinary members resident in Bombay at the ordinary meeting held in the month of January of alternate years, or, on the occurrence of a vacancy, at any other ordinary meeting of the Society.

Committee of Management.

XVIII. The Committee of Management have the general direction of the affairs of the Society, and decide on what communications are to be published in the Transactions of the Society. They keep minutes of all their proceedings which are entered in the minute-book of the Society and read at the following ordinary meeting.

XIX. When questions of importance to the stability and interests of the Society arise, such shall be submitted by the Committee for decision to the ordinary members residing under the Government of Bombay. The majority of votes necessary to decide any questions, to be determined according to its importance, and fixed at the time, by the Committee.

XX. It shall form part of the duty of the Committee to give due consideration to all suggestions offered by members of the Society.

President and Vice-Presidents.

XXI. The President shall take the chair and conduct the business at all meetings of the Society.

XXII. In the absence of the President one of the Vice-Presidents shall take the chair, and conduct the business of the meeting; and in case neither be present, the senior member at the meeting shall preside.

Secretary.

XXIII. The Secretary is a member of the Committee of management *ex-officio*.

XXIV. It shall be his duty to enter into the minute-book of the Society, minutes of the proceedings of all meetings and transactions of the Society, and in communication with the Committee of Management to conduct the details of business, and carry on the correspondence of the Society.

XXV. The Secretary shall prepare an annual statement of the receipts and disbursements of the Society, to be laid before the ordinary meeting in the month of January of each year.

XXVI. To enable the Secretary to perform these duties, a suitable establishment is entertained under the sanction of the Committee of Management, confirmed at an ordinary meeting of the Society.

Meetings.

XXVII. Ordinary Meetings of the Society are held in Bombay on the first Saturday of every month.

XXVIII. The chair being taken, the order of business shall be as follows:—

1. The Minutes of the last meeting, and those of subsequent Committee meetings to be read and confirmed.

2. The announcement and election of new members in accordance with Regulations V, VI and VII.

3. The election of Corresponding and Honorary Members.

4. The reading of letters, and the discussion of any ordinary business of the Society which may be before the meeting.

5. The announcement of presents and donations.

6. That of papers and dissertations received since the last meeting.

XXIX. After the announcement of the papers and dissertations, the President shall call upon the Secretary to read one or more of them, and shall subsequently invite the members to discuss any particular part of them which they may consider deserving of remark.

XXX. No new business shall be introduced until that which is before the meeting, has been concluded.

Papers and Dissertations.

XXXI. All papers and dissertations presented to the Society to be considered the property of the Society.

XXXII. The Transactions of the Society are published by the Secretary in communication with the Committee as often as circumstances will admit.

XXXIII. A copy of each publication is presented to the Honorary and Corresponding Members of the Society, and to every Ordinary Member, who at the time of publication is a contributor to the funds of the Society.

N. B. The Medical Board has kindly permitted that letters and communications on the business of the Society, to the address of the Secretary to the Society, may be transmitted *under cover* to the Secretary to the Medical Board. In this manner they will pass free of postage, but not otherwise.

Members are requested to pay the amount of their subscriptions to Messrs. Leckie, and Co. the Society's Agents.



PROCEEDINGS
OF THE
MEDICAL AND PHYSICAL SOCIETY OF BOMBAY
FOR THE YEAR 1847.

COMMITTEE OF MANAGEMENT.

President.

J. GLEN, Esq.

Members.

J. McLENNAN, Esq.

J. SCOTT, Esq.

J. DON, M. D.

C. MOREHEAD, M. D.

Secretary.

H. J. CARTER, Esq.

Proceedings of a Quarterly Meeting of the Medical and Physical Society, held at the Grant Medical College on Saturday the 3rd January 1847.

Present.

J. GLEN, Esq.—President in the Chair.

Members.

J. McLennan, Esq. ; A. H. LEITH, Esq. ; C. Morehead, M. D. ; H. J. Carter, *Secretary*.

MEMBERS ELECTED.

None.

LETTERS READ.

A letter from Sir George Ballingall, thanking the Society for the last number of its Transactions.

Letters from A. Montgomery, Esq. Drs. A. Burn and Giraud, requesting that their names might be withdrawn from the list of Members of the Society.

Letters from Mr. Richardson of London and from Messrs Remington, & Co. of Bombay ; the former acknowledging the receipt of a remittance of £ 5-0-0 from the Society, the latter applying for the 3rd number of the Society's Transactions.

The result of the voting lists circulated in November last, for the election of a Committee for the year 1847, and for that of a Secretary for the year 1847 and 1848, were then announced.

A Statement of the receipts and disbursement of the Society for the past year being called for, it was deferred until the next Meeting upon the report of the Secretary, that Messrs. Leckie & Co. had not yet forwarded the Society's annual account.

The necessity of providing for the continuance of holding ordinary Meetings of the Society in Bombay, and the nature of the business to be transacted at them was then discussed, and it was resolved that the subject be left for the consideration of the Committee to submit for the approval of the members such alterations in the Society's regulations as it might deem necessary.

The best thanks of the Society were then voted to the China Medico-Chirurgical Society of Hongkong, and to Professor Paine of New York for their presents, and a complete copy of the Society's Transactions was directed to be forwarded for the acceptance of the former.

No other business being before the Society, the Meeting was adjourned to the 3rd April, 1847.

Proceedings of a Quarterly Meeting of the Medical and Physical Society, held at the Grant Medical College on Saturday the 3rd April, 1847.

Present.

J. GLEN, Esq.—President in the Chair.

Members.

J. Don, M.D.; B. P. Rook, Esq.; J. Scott, Esq.; T. Mackenzie, Esq.; C. Morehead M.D.; A. H. Leith, Esq.; W. C. Coles, M.D.; and Henry J. Carter, *Secretary*.

MEMBERS ELECTED.

None.

LETTERS READ.

1. From R. Elliot, Esq., and J. W. Winchester, Esq. returning the receipts of their Subscriptions, and intimating that they wished to be considered as having withdrawn from the Society under the conditions laid down in No. x. of the Society's regulations.

2. From John Crosse, Esq. of Norwich transmitting his best thanks to the Society, for its having conferred on him the distinction of Honorary Member.

3. From the Medical Board accompanying the annual Reports of 1844 and 1845, and requesting that they may be returned when no longer required by the Society.

4. From Professor Peet of the Grant Medical College accompanying a case of Hydrocephalus.

The Secretary then reported that, in accordance with a resolution passed at the last Meeting, the Committee had submitted to the members generally a proposition for con-

inuing to hold ordinary Meetings of the Society in Bombay, accompanied by a Draft of the Society's regulations altered to admit of their introduction. The proposition had been carried, and the new regulations having received the sanction and approval of the members, were now in operation; it therefore became necessary in accordance with them, to increase the number of members in the Committee of management (which was originally five) to Eight, and from that Committee to elect a *President* and two *Vice Presidents*.

The Election of the additional Members of Committee was provided for in Art. xv. and this would bring in B. P. Rooke, Esq.; A. H. Leith, Esq.; and J. Peet, Esq.

The Meeting then proceed to elect a *President* and two *Vice Presidents* and the Votes were declared in favor of J. Glen, Esq. to be *President*; and J. McLeman Esq., and C. Morehead M.D. *Vice Presidents*.

Original Communications.

Note on the supposed uses of the Bile in the Function of Digestion. By Dr. Morehead. Presented by the author.

A few notes on a case of Hydrocephalus (congenital). By J. Peet, Esq. Presented by the author.

The best thanks of the Society were accorded to the several Donors for their original Communications and Contributions to the Library; notice was given that the first sheets of the forthcoming number of the Society's Transactions were in the press, and no other business being before the Society, the Meeting was adjourned to Saturday the 3rd July 1847.

Proceedings of a Quarterly Meeting of the Medical and Physical Society held at the Grant Medical College on Saturday the 3rd July, 1847.

Present.

C. MOREHEAD, M.D.—Vice President in the Chair.

Members.

J. Don, M. D.; A. H. Leith, Esq.; E. Impey, Esq.; J. Peet, Esq.; T. T. Sanderson Esq.; and H. J. Carter, Esq., *Secretary*.

The following gentlemen were elected members of the Society in accordance with Regulation vii.

W. Peach, Esq.; J. Bean, Esq.; and V. Lawes, Esq.; of the Hon'ble Company's Service, Bombay Establishment.

Letters read.

1. A letter from Dr. Pitcairn requesting that his name might be erased from the list of members of the Society.

2. A letter from the Medical Board accompanying a communication from Dr. Ross Civil Surgeon, Bagdad, with a chart of the track of the Cholera through the Pachalicks of Bagdad and Mussool.

3rd. A letter from Messrs. Remington & Co., applying for the eighth No. of the Society's Transactions, when published.

4th. A letter from the Medical Board accompanied by the Annual Reports of 1846, and also a paper "on Warburg's Drops"; by Dr. Larkins.

5th. A letter from Dr. Morehead enclosing a bill for Rupees 41 received from Dr. Shaw, Madras Presidency.

6th. A letter from Dr. Coles intimating his wish to continue a member of the Society.

Original Communications.

Dr. Ross's track of the cholera through the Pachalicks of Bagdad and Mussool, and a Paper by T. B. Larkins, Esq., on the efficacy of "Warburg's Drops" in the cure of Intermittent Fever. A fatal case of poisoning by Arsenic, in which the Symptoms of Norcotism were prominent at the commencement. By Dr. Morehead. Presented by the Author.

The attention of the Meeting was next directed to the patient inventions of Messrs. Weiss and Squires for inhaling Ether, which, through the kindness of Drs. Leith and Impey, had been placed on the table for examination; and after a few observations on this subject, the best thanks of the Society were accorded to the several contributors for their original communications, and presents for the Library, and the Meeting was adjourned to Saturday the 2nd of October 1847.

Proceedings of a Quarterly Meeting of the Medical and Physical Society held at the Grant Medical College on Saturday the 2nd October, 1847.

Present.

J. GLEN, Esq.—President in the Chair.

Members.

Dr. Morehead, Vice President; A. H. Leith, Esq., J. Peet, Esq., J. Keith, M. D. and H. J. Carter, Esq., Secretary.

Sir G. Ballingall; Dr. Baron and Dr. J. E. Crosse, were proposed as Honorary Members of the Society by Dr. Morehead, seconded by the President: a ballot will take place for their election at the next meeting of the Society.

Original Communications.

Beriberi among the Marines of the Indian Navy on board the Hon'ble Company's Surveying Vessels *Palinurus* and *Nurbudda*, between November 1844, and June 1846.

A case of rupture of the Interventricular partition of the heart from external violence; and notes on the species, structure and animality of the fresh water sponges in the tanks of Bombay. By H. J. Carter Esq. Presented by the Author.

Parts were read from the two latter communications, and after a few observations on their respective subjects, the best thanks of the Society were voted to the Author, and to Dr. J. E. Crosse for their valuable contributions. The meeting was adjourned to January 1st, 1848.

FOR THE YEAR 1848

COMMITTEE OF MANAGEMENT.

President.

JOSEPH GLEN, ESQ.

Members.

J. McLENNAN, ESQ.	A. H. LEITH, ESQ.
J. DON, M. D.	E. IMPEY, ESQ.
C. MOREHEAD, M. D.	R. D. C. PEELE, ESQ.

J. PEET ESQ.

Secretary.

HENRY J. CARTER, ESQ.

Proceedings of a Quarterly Meeting of the Medical and Physical Society, held at the Grant Medical College, on Saturday the 1st January, 1848.

Present.

C. MOREHEAD, M. D.—Vice President in the Chair

Members.

J. McLennan, Esq., Vice President ; T. McKenzie, Esq., A. H. Leith Esq., W. Arbuckle M. D. ; and H. J. Carter, Esq., Secretary.

The following Gentlemen were elected Ordinary Members of the Society.

J. Keith, M. D. ; and J. M. Bowie, Esq., in accordance with Regulations No. VII

Honorary Members.

Sir G. Ballingall, Dr. Baron, and Dr. J. E. Crosse, in accordance with Regulations XII.

The voting lists issued in November last, for the election of a new Committee of Management for 1848, were declared as above.

Letters Read.

1. A letter from Dr. J. Kimis, Deputy Inspector General of Her Majesty's Hospitals in India, acknowledging the receipt of the last published No. of the "Society's Transactions," and accepting, with thanks the Committee's invitation to him to become Patron of the Society, according to custom, in conjunction with the Medical Board of Bombay.

2. A letter from J. Scott, Esq., requesting to withdraw from the Society.

3. A letter from J. W. Reynolds, Esq., intimating his desire to continue a Member of the Society.

4. A letter from Dr. Pirie, accompanying a communication on the wounded in the engagement near Kunree.

The Secretary announced that the eighth number of the "Society's Transactions" had been printed, that (100) copies had been sent as usual to the Government, and that the rest had been partly issued, but that there were many members who were in arrears with their subscriptions, and to those copies had not been forwarded.

A question then arose respecting the necessity of making Article X. of the Society's Regulations more stringent with respect to payment. This was deferred for the consideration of the Committee. The Secretary was directed protempore to remind those who were in arrears with their subscription, of the amount due by them respectively to the Society.

Original Communications.

Report of men wounded in the late engagement near the village of Kurree, Beloochistan, between a tribe of Boogtees, and a detachment of the 1st Scinde Irregular Horse, on the 1st of October, 1847; also a report of five severely wounded Boogtee prisoners. By J. Pirie M. D. presented by the Author.

The thanks of the Society were then voted to the Editor of the Dublin Quarterly Journal, and to Dr. Pirie for their valuable presents.

The skull of a woman presenting a circular fracture, on its upper and anterior part, supposed to have been produced by a blow with a hammer, submitted for examination and afterwards deposited in the Museum of the College. The woman who is said to have been called "Omee" was probably murdered by a man named Bablee Becajee, who pointed out the place in a house in the Girgaum road, where he had buried her. Her remains were disinterred on the 27th ultimo, upwards of 8 weeks, after the murder. The subject elicited a few observations from the members present, and the Meeting was adjourned to Saturday the 1st April, 1848.

Proceedings of a Quarterly Meeting of the Medical and Physical Society, held at the Grant Medical College, on Saturday the 1st April, 1848.

Present.

C. MOREHEAD, M. D.—Vice President in the Chair.

Members.

W. Arbuckle, M. D.; E. Impey, Esq.; J. Peet, Esq.; H. J. Carter, Esq. *Secretary.*

Members Elected.

G. Bairnsfather, Esq., W. F. Clay, Esq., and J. P. Stuart, Esq., Assistant Surgeon, Bombay Establishment, in accordance with Regulation No. VII.

Letters Read.

Letters from A. Gibson, Esq., B. P. Rooke, Esq., G. Nuttall, Esq., T. S. Butler, Esq., R. Miller Esq., W. C. Brown, Esq., J. F. Steinhauser, Esq., and F. W. Harris, Esq. intimating a desire that their names should be withdrawn from the list of Members of the Society.

Letters from Dr. Mouat, Secretary to the Medical College, Calcutta; Dr. H. John, Deputy Inspector General of Her Majesty's Hospitals, Madras; and H. Franklin, Deputy Inspector General of Her Majesty's Hospitals, Meerut, acknowledging the receipt of the eighth No. of the Society's Transactions.

A letter from A. Walker, Esq., forwarding a Hoondee for Rs. (36) being his subscriptions due, in arrears and advance for the present year to the Society.

Original Communications.

Contributions to the Military Statistics of China, by J. Kinnis, M. D. Part I.—on the Military Stations, Barracks, and Hospitals of Hongkong, written in 1846. Part II.—on the Health of Her Majesty's European Troops serving in China, from 1st April 1844, to 31st, March 1845. Presented by the Author.

The meeting was adjourned to Saturday the 1st July, 1848.

Proceedings of a Quarterly Meeting of the Medical and Physical Society, held at the Grant Medical College, on Saturday the 1st July, 1848.

Present.

J. McLENNAN, Esq.,—President in the Chair.

C. MOREHEAD, M. D.—Vice President.

Members.

J. GLEN, Esq., H. Gibb, Esq., W. B. Taylor, Esq., A. H. Leith, Esq., W. Arbuckle, M. D.; J. Peet, Esq., W. C. Coles, M. D.; and H. J. Carter, Esq., *Secretary*.

Members Elected.

G. F. H. Brown Esq., J. M. McKenzie, M. D.; J. Mills, Esq., H. Wilson, M. D. and H. Dean, Esq., Assistant Surgeons, Bombay Establishment, in accordance with Regulations No. VII.

Letters Read.

Letters from J. G. Fraser, M. D.; J. M. Hyslop, M. D.; J. Nicholson, Esq., and J. Murray, Esq., intimating their wish to be considered ordinary Members of the Society.

Letters from Sir George Ballingall and Dr. Baron, presenting their thanks to the Society for their election as Honorary Members.

Letter from the Chief Secretary to Government, No. 1966, dated 1st May, presenting 5 copies of reports of cases treated in the Mesmeric Hospital at Calcutta.

Letter from the Secretary to Government, No. 1469, dated 27th April, communicating a report of the Sattara Hospital, &c. by J. Murray, Esq.

Letter from Dr. Kinnis, enclosing a Cheque for Rupees (100) as a donation to the Society.

Original Communication.

An account of the operations of the Sattara Hospital, to which are appended cursory remarks on the climate and diseases of Sattara. By J. Murray, Esq. Communicated by Government. The thanks of the Society, were voted to the Donors for their several contributions, and the Meeting was adjourned to Saturday the 7th October, 1848.

Proceedings of a Quarterly meeting of the Medical and Physical Society, held at the Grant Medical College, on Saturday the 7th October, 1848.

Present.

JOHN PATCH, Esq.—President in the chair.

Vice President.

C. MOREHEAD, M. D.; and A. H. LEITH, Esq.

Members.

Joseph Glen, Esq., James Burnes, M. D. K. H. F. R. S.; H. Gibb, Esq., R. D. Peele, Esq., J. Peet, Esq., W. C. Coles, M. D.; and H. J. Carter, Esq., *Secretary*.

Members Elected.

J. Gilbert, Esq., G. Dearlove, Esq., J. S. Remington, Esq., and H. Johnstone, Esq., Assistant Surgeons, Bombay Establishment, in accordance with Regulation VII.; H. Giraud, M. D., in accordance with Regulation V.; and B. A. Bremner M. D., proposed by John Peet, Esq., seconded by H. J. Carter, Esq., in accordance with Regulation VII.

Letters Read.

Letter from Dr. Hall, Cape Town, acknowledging the receipt of the 8th No. of the Society's Transactions; and from H. P. Lawrence, and J. M. Knapp, Esqs., expressing their desire not to continue Members of the Society.

The Secretary in accordance with a previous communication to the Committee of Management, having tendered his resignation (assigning as a reason for this step that he had not sufficient time at his disposal to pay proper attention to the affairs of the Society.) officiated for the remainder of the meeting. John Peet, Esq. seconded by R. D. Peele, Esq. moved "that this meeting record its regret that circumstances have rendered it necessary for Dr. Carter, to tender his resignation as Secretary to the Society, and that the thanks of the members are due to Dr. Carter, for his services during the time he has held office." This was unanimously carried.

An election by vote then took place for a new *Secretary*, in accordance with Regulation XVII, and John Peet, Esq. was unanimously chosen for the appointment. James Burnes, M. D., K. H. seconded by John Patch, Esq. proposed that a complete set of the Transactions of the Society, should be presented to the Grant Medical College Library.

Original Communications.

1. Note on Jaundice as a complication of the endemic Remittent Fever of Bombay; its relation to enlarged lymphatic glands in the line of the common Duct and to Duodenitis." By C. Morehead, M. D.; Communicated by the Author.

2. Note on the Epidemic of Measles which appeared in the Central Schools, Byculla, during the winter months of 1846, and 1847. By W. C. Coles, M. D. ; communicated by the Author.

3. " A short account of a case of Hydrophobia, admitted into the Jamssetjee Jeejeebhoy Hospital in the month of September 1848." By John Peet, Esq. ; Communicated by the Author.

4. Remarks on the use of Iodine, and Iodide of Potassium in the different forms of secondary Syphilis as observed in the European General Hospital in the years 1845 and 1846. By R. D. Peele, Esq. ; Communicated by the author.

These papers were read and discussed successively.

Preparations were exhibited of the fractured Cranium of the *Seedee* who received the blow which ended in his death, from Carter the Constable, in a scuffle ; of the Cranium of a Hindoo over which the wheel of a vehicle had passed ; also of a case of Diplo-genesis ; the latter presented to the Anatomical Museum of the Grant Medical College by the Medical Board.

The best thanks of the Meeting were then voted to the several contributors for their respective donations and original communications. The Meeting was adjourned to Saturday the 6th January, 1849.

LIST OF DONATIONS FOR THE LIBRARY.

BY THE EDITOR.

Two Copies of the first No. of the Transactions of the China Medico-Chirurgical Society of Hongkong.

BY THE AUTHOR.

A Copy of Professor Paine's Introductory Lecture on the Physiology of Digestion, delivered in the University of New York in the Session of 1844-45.

BY SIR GEORGE BALLINGALL.

An Introductory Lecture to a course of Military Surgery, delivered in the University of Edinburgh.

BY THE AUTHOR.

A paper by Dr. Pruner, on the identity of feature between the ancient Egyptians and the Fellahs of the present day.

BY W. K. WILKES, Esq.

Dublin Quarterly Journal of Medical Science, No. III.

BY DR. J. E. CROSSE.

A copy of his "Essay Literary and Practical on Inversio Uteri," and also a copy of the Report of the Anniversary Meeting of the Provincial Medical and Surgical Association.

BY THE EDITOR.

Dublin Quarterly Journal of Medical Science, No. VI.

BY THE EDITOR.

Dublin Quarterly Journal of Medical Science, No. VII.

BY THE GOVERNMENT.

Five copies each of two Reports of Cases treated in the Mesmeric Hospital at Calcutta, between November 1836 and December 1847.

BY THE EDITOR.

Reports of the Society and Auditors of the Royal Society of Arts and Sciences, Mauritius.

BY THE EDITOR.

Dublin Quarterly Journal of Medical Science, No. IX. and X.

LIST OF MEMBERS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

ORDINARY MEMBERS BOMBAY PRESIDENCY.

The asterisk (*) marks those members who are absent on furlough or sick leave

* Anderson, A. T. Esq., <i>Assistant Surgeon.</i>	Giraud, H., M. D., <i>Assistant Surgeon.</i>
* Arbuckle, W., M. D., <i>Surgeon.</i>	Gray, P. Esq., <i>Surgeon.</i>
Arnott, F. S., M. D., <i>Surgeon.</i>	Grierson, D., M. D., <i>Surgeon.</i>
Babington, W. F. Esq., <i>Assistant Surgeon.</i>	Haines, R., M. B., <i>Assistant Surgeon.</i>
Ballingall, G. R. Esq., <i>Assistant Surgeon.</i>	Hamilton, J. Esq., <i>Surgeon.</i>
Bairnsfather, G. Esq., <i>Assistant Surgeon.</i>	Harris, A. Esq., <i>Assistant Surgeon.</i>
Barrington, W. F., L. L. D., <i>Surgeon.</i>	* Hussey, R. Esq., <i>Assistant Surgeon.</i>
Bayne, R., M. D., <i>Assistant Surgeon.</i>	Hyslop, J. M., M. D., <i>Assistant Surgeon.</i>
* Behan, R. J. Esq., <i>Surgeon.</i>	Imlach, C. J. E., M. D., <i>Assistant Surgeon.</i>
Bowie, J. M. Esq., <i>Assistant Surgeon.</i>	Impey, E. Esq., <i>Assistant Surgeon.</i>
Boyd, J. Esq., <i>Surgeon.</i>	Johnstone, T. B., M. D., <i>Assistant Surgeon.</i>
Boycott, T. Esq., <i>Assistant Surgeon.</i>	Johnston, H., M. D., <i>Assistant Surgeon.</i>
Bremner, B. A., M. D., <i>Surgeon in Bombay.</i>	Joseph, J. M. Esq., <i>Surgeon in Bombay.</i>
Brown, G. F. H. Esq., <i>Assistant Surgeon.</i>	* Keith, J. Esq., <i>Surgeon.</i>
Burnes, J., K. H. F. R. S., <i>Surgeon General.</i>	Keith, J., M. D., <i>Assistant Surgeon.</i>
Burn, A., M. D., <i>Surgeon.</i>	Kennedy, J. L. Esq., <i>Assistant Surgeon.</i>
Calder, A. F., M. D., <i>Assistant Surgeon.</i>	* Kirk, R. Esq., <i>Surgeon.</i>
Campbell, W., M. D., <i>Assistant Surgeon.</i>	Larkworthy, A. Esq., <i>Surgeon in Bombay.</i>
Carter, H. J. Esq., <i>Assistant Surgeon.</i>	Lawes, V. Esq., <i>Assistant Surgeon.</i>
Carnegie, D. A., M. D., <i>Assistant Surgeon.</i>	Leith, A. H. Esq., <i>Surgeon.</i>
Clay, F. W. Esq., <i>Assistant Surgeon.</i>	Lord, R. G., M. D., <i>Assistant Surgeon.</i>
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* Craig, J. Esq., <i>Assistant Surgeon.</i>	Mahaffy, E., M. D., <i>Assistant Surgeon.</i>
Crespigny, E. de., M. D., <i>Assistant Surgeon.</i>	Maitland, G. P., Esq., <i>Assistant Surgeon.</i>
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Daubeney, J. Esq., <i>Assistant Surgeon.</i>	McKenzie, T. Esq., <i>Surgeon.</i>
Davey, W. Esq., <i>Assistant Surgeon.</i>	McKenzie, J. Esq., <i>Assistant Surgeon.</i>
Davidson, R. H., M. D., <i>Assistant Surgeon.</i>	McKenzie, G. J. Esq., <i>Assistant Surgeon.</i>
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Doig, J. Esq., <i>Surgeon.</i>	Mead, C. C. Esq., <i>Assistant Surgeon.</i>
* Don, J., M. D., <i>Surgeon.</i>	Miller, J. R., M. D., <i>Assistant Surgeon.</i>
Downes, E. J. Esq., <i>Surgeon.</i>	Miller, H. Esq., <i>Surgeon in Bombay.</i>
Fogarty, W. K. Esq., <i>Surgeon in Bombay.</i>	Mills, J. Esq., <i>Assistant Surgeon.</i>
Fraser, J. Esq., <i>Surgeon.</i>	Morehead, C., M. D., <i>Surgeon.</i>
Fraser, G. J., M. D., <i>Assistant Surgeon.</i>	Mosgrove, F. J. Esq., <i>Assistant Surgeon.</i>
Freeman, J. E., M. D., <i>Assistant Surgeon.</i>	Murray, J. Esq., <i>Surgeon.</i>
Gibb, H. Esq., <i>Superintending Surgeon.</i>	Murray, W. R., M. D., <i>Assistant Surgeon.</i>
Gilbert, J. Esq., <i>Assistant Surgeon.</i>	Murray, T. Esq., <i>Assistant Surgeon.</i>
Gillanders, W. P. Esq., <i>Assistant Surgeon.</i>	Neilson, W., M. D., <i>Assistant Surgeon.</i>

LIST OF MEMBERS.

- * Nicholson, B. A. R. Esq., *Surgeon*.
 Patch, J. Esq., *Physician General*.
 Peach, W. Esq., *Assistant Surgeon*.
 Peart, J. H. Esq., *Surgeon*.
 Peele, R. D. C. Esq., *Assistant Surgeon*.
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 Pitman, H. Esq., *Assistant Surgeon*.
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 Sinclair, J. Esq., *Inspector General of Hospitals*.
 Skelding, W. Esq., *Assistant Surgeon*.
 * Smith, J. Y., M. D., *Assistant Surgeon*.
 Stewart, J. G., M. D., *Surgeon*.
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 Stocks, J. C. Esq., *Assistant Surgeon*.
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 Thom, W. Esq., *Assistant Surgeon*.
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 Thomson, A. S. Esq., *Assistant Surgeon, H. M.'s S.*
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 W. B. O'Shaughnessy, Esq., *Deputy Assay Master, Calcutta*.
 P. Jackson, Esq., *Bengal Establishment*.
 J. Shaw, Esq., *Assistant Surgeon, Madras Establishment*.
 A. Anderson, Esq., *Acting Surgeon, to H. B. Majesty's Superintendent in China*.

CORRESPONDING MEMBERS.

- G. Smyttan, Esq.
 J. Glen, Esq.
 J. Walker, Esq.
 J. S. Law, Esq., B. C. S.
 Captain Shortrede, *Superintendent of the Trigonometrical Survey*.
 Dr. Pruner, *Chief Physician to the Military Hospital, and Professor in the Medical College at Cairo*.
 A. Henderson, Esq.
 H. Johnston, Esq.
 R. H. Kennedy, Esq.
 M. M. J. Desjardin, Esq., *Secretary to the Society of Natural History, in Mauritius*.
 Dr. Laidlaw, *Alexandria*.
 R. H. Hunter, Esq., *H. M.'s Service*.

HONORARY MEMBERS.

- Sir George Ballingall, *Professor of Military Surgery, Edinburgh*.
 J. Baron, M. D., *Cheltenham*.
 J. C. Crosse, M. D., *Norwich*.



ERRATA.

Page.	Line.	For	Read.
14	b.	164	614
29	4 Cutaneous Diseases	Ophthalmia.
	5 Ophthalmia	Cutaneous Diseases.
33	98th Regt. — Intermittent Died.....	51	15
"	———— Pneumonia Admitted ...	0	5
34	———— Ulcers	11	111
"	Total ——— Pneumonia	5	10
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75	13 Next above Total Natives write Mad. Sap. Min. &c..	199-10-297-2	
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	{ Cerebral Disease 6th. }	and Cerebral	
		Diseases 5th.	
94	11	64	63
97	17	215	2151



